Electrolux

Technical Service Manual

Front Load Washing Machine

For Models EFLS617SIW / EFLS517SIW / EFLW417SIW

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Table of Contents

1. Safety Information....5
2. Purpose of this Manual....6
3. Warnings....7
4. Product Features....8
4.1 EFLS617SIW / EFLS517SIW / EFLW417SIW....8
5. Model Specifications....9
5.1 Electric Front Load Washers....9
6. Technical Characteristics....12
6.1 Detergent Dispenser....12
6.1.1 Detergent Dispenser with Multi-Way Solenoid Valves....12
6.1.2 Operating Principle of 4-Way Compartment Conveyor....12
7. Electrical Characteristics....13
7.1 Electronic Control....13
7.1.1 User Interface (UI) Board....13
7.1.2 Main Control Board....14
7.1.3 Motor Control Board - MCB....14
7.2 Schematic Diagrams - EFLS617SIW / EFLS517SIW / EFLW417SIW....15
7.2.1 User Interface Board....15
7.2.2 Motor Control Board....15
7.2.3 Main Control Board....16
7.3 Wiring Diagram - EFLS617SIW / EFLS517SIW / EFLW417SIW....17
8. Electrical Components – EFLS617SIW / EFLS517SIW / EFLW417SIW....18
8.1 Pump....19
8.1.1 General Characteristics....19
8.2 Heating Element....19
8.2.1 General Characteristics....19
8.3 Temperature Probe (NTC)....20
8.3.1 General Characteristics....20
8.4 Analog Pressure Sensor....20
8.4.1 General Characteristics....20
8.5 Door Lock....21
8.5.1 General Characteristics....21
8.6 Three-Phase Asynchronous Motor – Inverter....22
8.6.1 Motor Characteristics....22
8.7 Solenoid Valves....22
8.7.1 General Characteristics....22
8.7.2 Operating Principle....22
8.7.3 Mechanical Jamming of the Solenoid Valve....22
8.7.4 Low Water Pressure....22
8.8 LED Drum Light....23
9. Top Panel Accessibility....24
9.1 Main Control Board Assembly Accessibility....24
9.2 Pressure Sensor Accessibility....24
9.3 Solenoid Valve Accessibility....25
10. Rear Panel Accessibility....26
10.1 Belt....26
10.2 Heating Element Assembly (Heater and NTC) Accessibility....26
10.3 Motor Accessibility....26
10.4 Motor Control Board Assembly Accessibility....26
11. Door Lock Accessibility....27
12. Front Panel Accessibility....28
12.1 Control Panel Accessibility....28
12.2 Concentrated Wash Pump Accessibility....29
12.3 Drain Pump Accessibility....29
12.4 Recirculation Pump Accessibility....29
12.5 Leveling Leg Accessibility....29
12.6 Drum Light Accessibility....29
13. Diagnostic System -EFLS617SIW / EFLS517SIW / EFLW417SIW....30
13.1 Diagnostic Mode....30
13.2 Demo Mode....32
13.3 Error Code Table....33
14. Troubleshooting Based on Error Codes....35
E11: Fill Time Too Long....35
E13: Water Leak in Tub or in Pressure Sensor....37
E21: Water Not Pumping Out Fast Enough....38
E23: Drain TRIAC Error....39
E24: Drain TRIAC Error Sensing....39
E31: Electronic Pressure Switch Error....40
E32: Pressure Sensor Calibration Problem....40
E35: Pressure Sensor Indicates Water Overfill....41
E38: Air Trap Clogged....41
E41: Control Board Thinks the Door Switch is Open....42
E42: Door Lock Device Failure....42
E43: Door Lock TRIAC Failure....42
E44: Door Closed Sensing Failure....42
E45: Line Door Sensing Failure....42
E57: High Current on Inverter....43
E58: High Current on Motor Phase....43
E59: No Spin Signal for 3 Seconds....44
E55: Under Speed....44
E5A: High Temperature on Control Due to Overload....46
E5B: Motor Control Under Voltage....47
E5C: High Voltage Experienced by Motor Control....47
E5D: Communication Problem with Motor Control....48
E5E: Communication Problem from Motor Control....48
E5F: Motor Control is Continuously Resetting....48
E62: Wash Temperature Too High....49
E66: Heater Relay Problem....50
E68: Current Leakage to Ground on Heater or Wiring....50
E69: Heater Open....50
E6A: Heater Relay Sensing Problem....50
E71: Drum Water NTC Failure (Tub Heater)....51
E74: Wash Temperature Does Not Increase....51

E84: Recirculation Pump TRIAC Series....52
E85: Recirculation Pump TRIAC....52
E83: Wrong Selector Reading....53
E86: Incorrect User Interface Selection Table....53
E87: User Interface Micro-Controller Fault....53
E91: Communication Error User Interface to Control Board....53
E92: User Interface_Main Board Communications Error....53
E93: Console or Main Board Control Problem....54
E94: Main Board Control Problem....54
E97: Console or Main Board Control Problem....54
E98: Console Control Problem....54
E9C: User Interface Configuration Problem....55
E9E: Key Stuck or Contaminated....55
EH1: Frequency of Power Out of Limits....56
EH2: Supply Voltage Too High....56
EH3: Supply Voltage Too Low....56
EHE: Control Relay Fault....56
EHF: Control Relay Sense Fault....56
EF2: Too Much Soap or Wrong Type....57
EF5: Load Unbalanced....57
EF6: Control Reset....58
EF9: Hot Valve Warning....58

Read the entire Manual before attempting to service this product. Pay attention to all Warnings, Cautions, Notes and Important information. Failure to do so could result in serious personal injury and / or equipment damage.

DEFINITIONS

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Used to address practices not related to personal injury.

IMPORTANT

Information that requires special attention from the user.

2. Purpose of this Manual

The purpose of this Manual is to provide information regarding repair procedures of Washer fitted with the Electronic Control System. This Manual is intended for the use of Service Engineers of Electrolux.

The Manual includes the following topics:

- Product Features, Model Specifications
- Electrical Characteristics and Specifications
- Accessibility of the Electrical and Mechanical Components
- Diagnostics Systems
- Error Codes and Troubleshooting

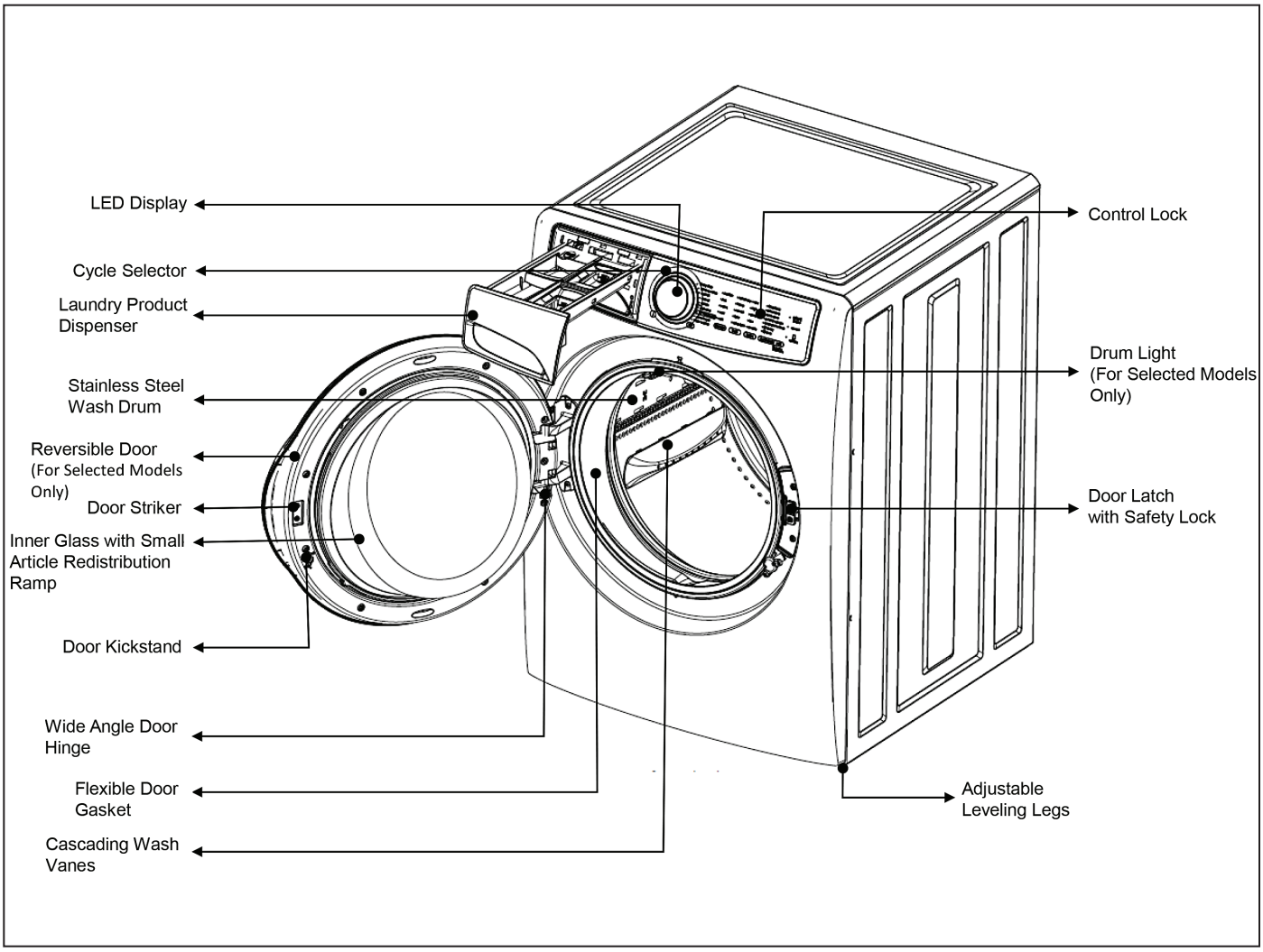
- Any work on Electrical Appliances must be carried out by a qualified professional.
- Confirm that the Power System is operational before working on the Appliance.
- Check that the Appliance is restored to its original safety condition after the operation is complete.
- Take the plug out of the socket to disconnect the power supply before you access internal components. This platform is not fitted with an ON / OFF switch.
- The Sensors located on the display board could be at a potential of 220 Volts (If applicable).
- Replace the heating element with the one that has the same characteristics (2 thermal fuses) to maintain safety measures for the Appliance. Do not remove / switch the NTC sensors between heating elements (**See Figure**).

Heating Element with Different Characteristics

- Always empty the Appliance before laying it on its side for any servicing.
- Do not lay down the machine on Electronic Control System side while servicing the unit. In such cases, some water in the detergent dispenser could sip into the electrical / electronic components and cause these to burn.
- The resistance values of the components shown in this SM (Service Manual) are purely indicative and approximate.
- Do not place any container under the Appliance to avoid collecting drops of water.
- Always place the cotton cloth below the machine to absorb water. There is a possibility of water leakage while servicing the Pumps and Dispenser.

4. Product Features

4.1 EFLS617SIW / EFLS517SIW / EFLW417SIW



5.1 Electric Front Load Washers

Description	EFLS617SIW	EFLS517SIW	EFLW417SIW
Total Capacity D.O.E.	4.4 Cu. Ft.	4.3 Cu. Ft.	4.3 Cu. Ft.
Washer Drum Interior	Stainless Steel	Stainless Steel	Stainless Steel
Lifetime Warranty Tub	Yes	Yes	Yes
Interior Light	Yes	Yes	No
Door Trim	Chrome	Chrome	White
Vibration Control System	Yes	Yes	Yes
Advanced Rinse Technology	Yes	Yes	Yes
TimeWise® Technology	Yes	Yes	Yes
Ready Clean™	No	No	No
Ready Steam™	Perfect Steam	Perfect Steam	No
Extra Rinse Option	Yes	Yes	Yes
Extended Refresh option	Yes	Yes	No
Perfect Steam option	Yes	Yes	No
StainSoak option	Yes	No	No
StainTreat II	No	Yes	No
StainTreat	No	No	Yes
Sanitize option	Yes	Yes	No
Stay-Fresh™ Door Seal	Yes	Yes	Yes
Temperature Control	Automatic	Automatic	Automatic
Water Level Adjustments	Automatic	Automatic	Automatic
Auto Prewash Detergent Dispenser	Yes	Yes	Yes
Auto Bleach Dispenser	Yes	Yes	Yes
Auto Detergent Dispenser	Yes	Yes	Yes
Auto Fabric Softener Dispenser	Yes	Yes	Yes
Time Remaining Display	Yes	Yes	Yes
Cycle Status Display	Yes	Yes	Yes
Cycle Signal	Chime + LED	Chime	Chime
Cycle Signal "ON / OFF":	Yes	Yes	Yes
Cycle Signal Volume Control	No	No	No
Mute / Unmute	Yes	Yes	Yes
Door Lock Indicator Display	Yes	Yes	Yes
Control Lock	Yes	Yes	Yes
Stay Put Door	Yes	Yes	Yes
Start / Pause / Cancel Buttons	Yes	Yes	Yes
Energy Saver Option (Leaf Icon)	Yes	Yes	Yes
Delay Start	Yes (Up to 16 Hr)	Yes (Up to 16 Hr)	Yes (Up to 16 Hr)
Integral Water Heater	Yes, 1000 Watts	Yes, 1000 Watts	No
Tumble Speed (RPM)	Variable	Variable	Variable

Model Specifications

Description	EFLS617SIW	EFLS517SIW	EFLW417SIW
Spin Speed	1300 Max. RPM	1300 Max. RPM	1300 Max. RPM
Sound Package	SilentDesign™		
Leveling Legs	Adjustable	Adjustable	Adjustable
Cycles			
Wash Cycles	8	8	6
Specialty Cycles	1	1	1
Total Cycles	9	9	7
Heavy Duty	Yes	Yes	Yes
Whitest Whites	Yes	Yes	Yes
Normal	Yes	Yes	Yes
Casual	Yes	Yes	No
Colors	Yes	Yes	No
Fast Wash	Yes (15 min)	Yes (18 min)	Yes (20 min)
Delicates	Yes	Yes	Yes
Rinse & Spin	Yes	Yes	Yes
Clean Washer	Yes	Yes	Yes
Options			
Water Temperature Selections	5	5	4
Water Levels	Automatic	Automatic	Automatic
Spin Speed	5	5	4
Soil Level Selections	5	5	4
Allergen	No	No	No
Certifications			
ENERGY STAR® Most Efficient[1]	Yes	Yes	Yes
NSF ® Certified Sanitize	Yes	Yes	No
Specifications			
Power Supply Connection Location	Right Top Rear	Right Top Rear	Right Top Rear
Water Inlet Connection Location	Left Top Rear	Left Top Rear	Left Top Rear
Voltage Rating	120 V / 60 Hz / 15 A	120 V / 60 Hz / 15 A	120V / 60 Hz / 15 A
Connected Load (KW) @ 120 V[2]	1.1 KW	1.1 KW	1.1 KW
Watts @ 120 Volts / A @ 120 V	1,100 Watts / 10 A		
Minimum Circuit Required	15 A	15 A	15 A
Dimensions and Weights			
Overall Width	27"	27"	27"
Overall Depth	32″ (811.7)	32″ (811.7)	32″ (811.7)
Overall Depth with Door Open 90°	53.5″	53.5″	53.5″
Overall Height	38″	38″	38″
Overall Height (Stacked)	75.75″	75.75″	75.75″
Pedestal Width	27"	27"	27"

Model Specifications

Description	EFLS617SIW	EFLS517SIW	EFLW417SIW
Pedestal Depth	26 - 1/2"	26 - 1/2"	26 - 1/2"
Pedestal Depth with Drawer Extended	42 - 1/2"	42 - 1/2"	42 - 1/2"
Pedestal Height	15.25"	15.25"	15.25"
Shipping Weight (Approx.)	222.0 Lbs	222.0 Lbs	222.0 Lbs

NOTE

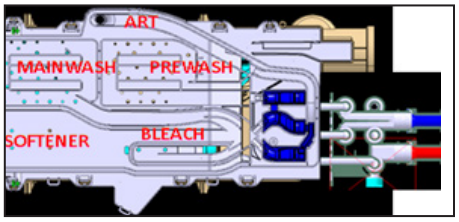
1. Recognized as the Most Efficient of ENERGY STAR® in 2016.

2. For use on adequately wired 120 V dedicated circuit having 2-wire service with a separate ground wire. Appliance must be grounded for safe operation.

6. Technical Characteristics

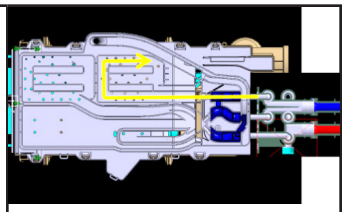
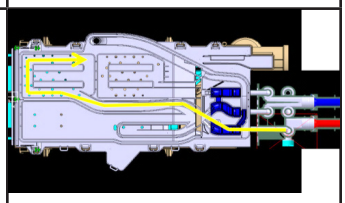
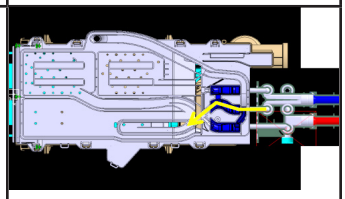
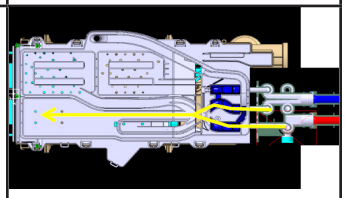
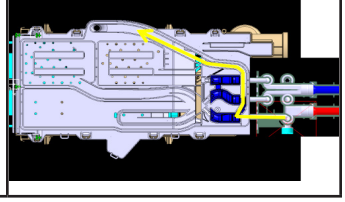
6.1 Detergent Dispenser

6.1.1 Detergent Dispenser with Multi-Way Solenoid Valves

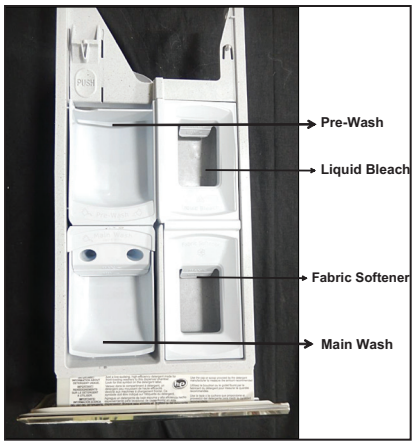


The water in the detergent dispenser is filled through a Solenoid Valve for both cold and hot water. The detergent dispenser has 4 compartments and one inlet for ART (Advanced Rinse Technology).

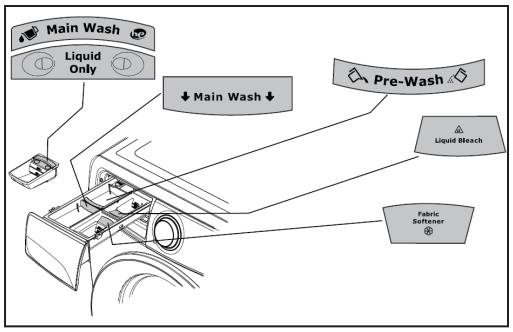
6.1.2 Operating Principle of 4-Way Compartment Conveyor

Water fill to Pre-Wash compartment (Cold Water)	
Water fill to Main wash compartment (Cold, Warm and Hot water)	
Water fill to Bleach compartment (Cold Water)	
Water fill to Softener compartment (Warm Water)	
Advanced Rinse Technology - ART (Cold / Warm Water)	

Main Wash



Liquid Detergent – Add the recommended amount of a high-efficiency liquid detergent to the "Main wash-liquid only" cup. Do not exceed the Max. fill line. Liquid Detergent can also be added directly to the Main Wash Chamber when not using the Pre-Wash chamber.



Powder Detergent – To use high-efficiency powder detergent, remove the "Main Wash – Liquid only" cup and add the powder directly to the Main Wash Detergent Chamber.

Liquid Chlorine Bleach

- If desired, add liquid chlorine bleach to the chamber labelled "Liquid Bleach" marked with this symbol cl .
- Fill to the Min. line for small loads and the Max. line for large loads.
- Do not fill above the Max. line.

Liquid Fabric Softener

- If desired, pour the recommended amount of liquid Fabric softener into the chamber labelled "Fabric Softener" marked with the symbol .
- Fill to the Min. line for small loads and the Max. line for large loads.
- Do not fill above the Max. line.

Detergent for Pre-wash

For Heavily soiled or stained loads, select the pre-wash option and add the recommended amount of detergent to the "Pre-Wash" detergent cup.

7.1 Electronic Control

The Electronic Control is made up of the following:

1. User Interface (UI) Board

2. Main Control Board (Positioned inside the machine on the right side near to the Rear Panel)

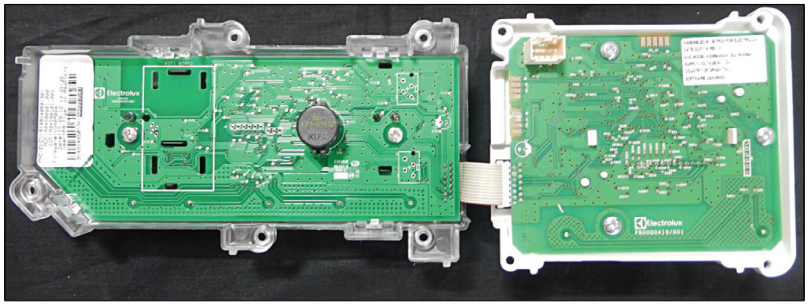
3. Motor Control Board (Positioned at the bottom left of the Appliance seen from the rear)

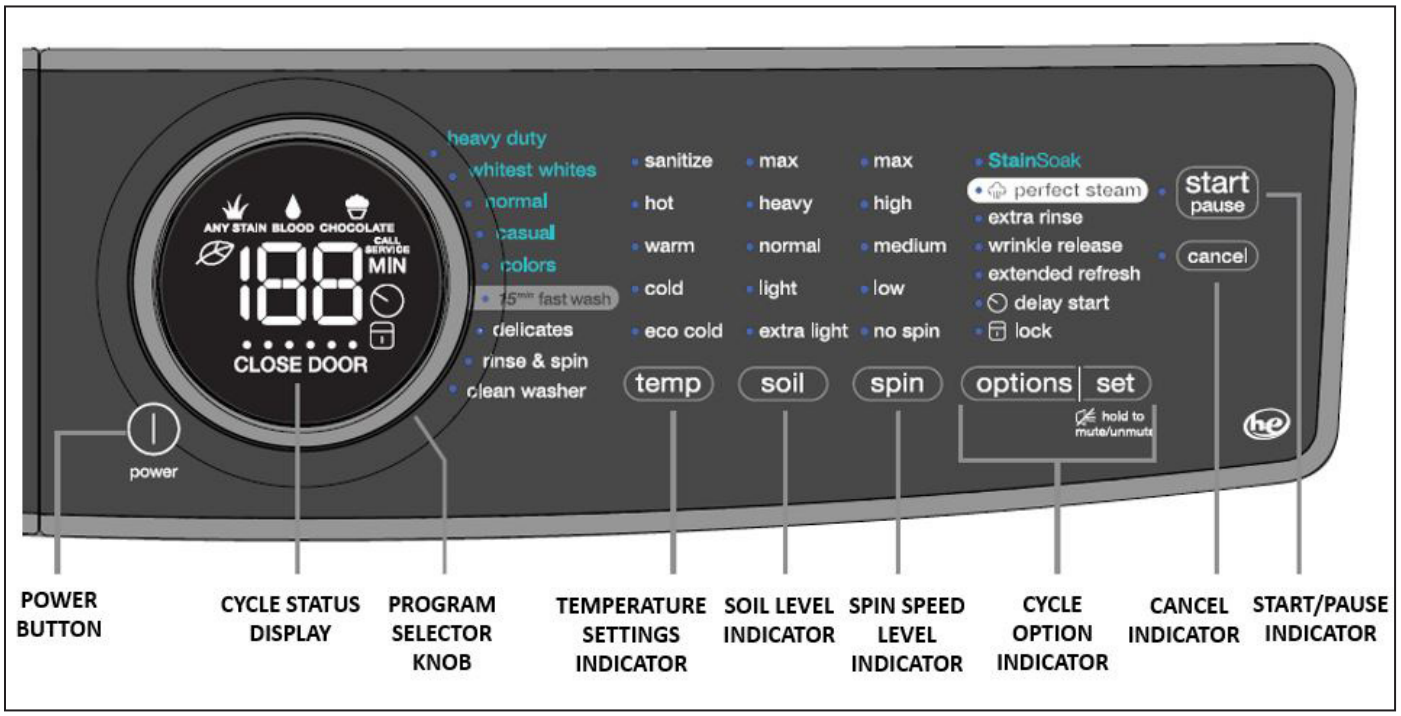
7.1.1 User Interface (UI) Board

The User Interface (UI) Board contains: the selector dial to select the washing programme, the LCD display to display the programme, status, time and so on information. Buttons are available to adjust the following: the washing temperature, the spin speed, to select an option, the degree of drying and lastly the **start / pause** button to pause or start a programme, while **cancel** button acts as OFF.

It is possible to select the programmes by turning the selector. The options can be selected by pressing / touching the buttons. The **start / pause** button is used to start the machine or pause it. The buzzer - where featured, is powered by the User Interface (UI) Board.

User Interface (UI) Board – EFLS617SIW



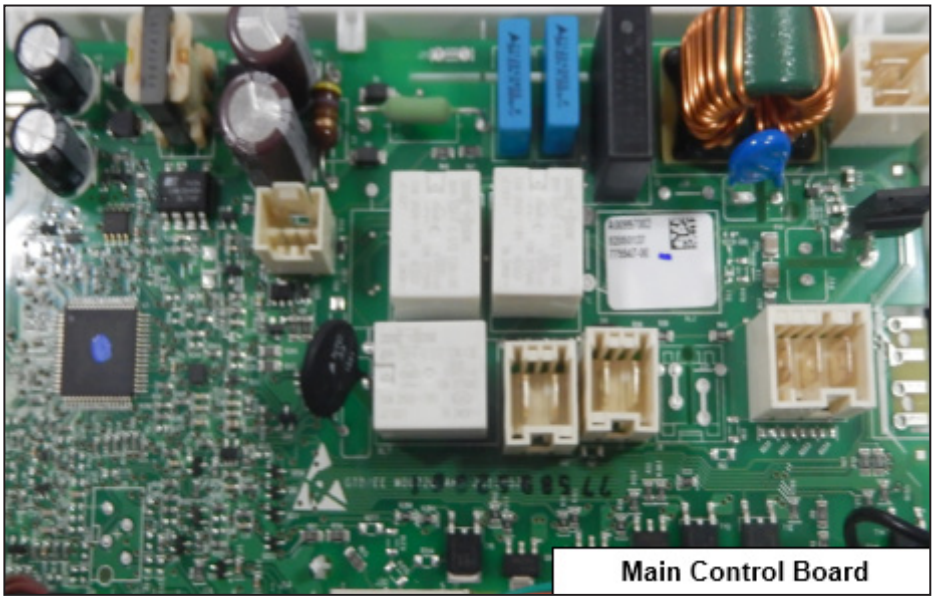


7.1.2 Main Control Board

The Main Control Board supplies the power supply voltage to the Motor control and User Interface (UI) Board and all other electrical components.

The commands acquired by the User Interface Board (by turning the selector, selecting an option and so on) are sent to the Main Control Board, which powers all the electrical components (Solenoid Valve, Drain Pump, Heating Element Assembly, Door Lock, Motor Control Board and the Display Board).

1. It controls the level of water via the analog Pressure Sensor.
2. It controls and monitors the status of the door.
3. It controls the temperature of the wash water via NTC probe inserted in the heating element.
4. It controls the voltage and frequency of the power supply and ensures they are close to the rated ones.
5. It controls the flow of water through the Solenoid Valve.

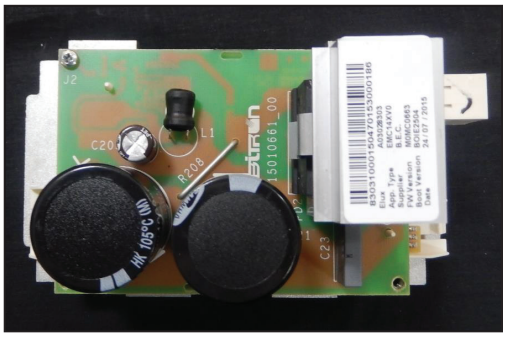


Main Control Board

7.1.3 Motor Control Board

Motor Control Board transforms the energy from single-phase to three-phase, which can be modulated in breadth and frequency respectively to adjust the power and number of revolutions of the motor.

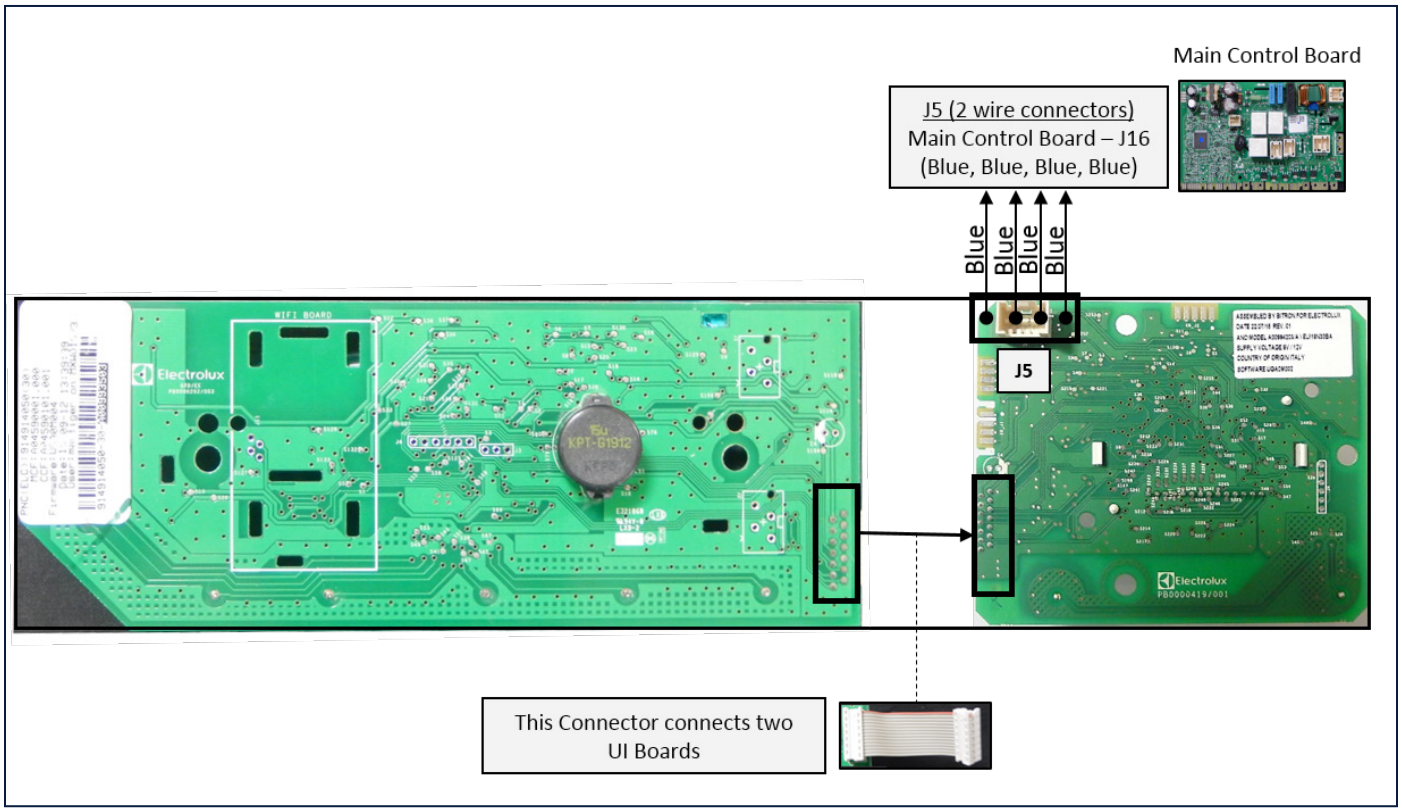
It receives signals from the main control board and sends voltage to the drive motor to spin the drive motor in the proper direction and at the proper speed. The motor control board detects the speed of the drive motor through a tachometer component. If the motor control is not working properly, the drive motor might not spin at all or might spin at the wrong speed.



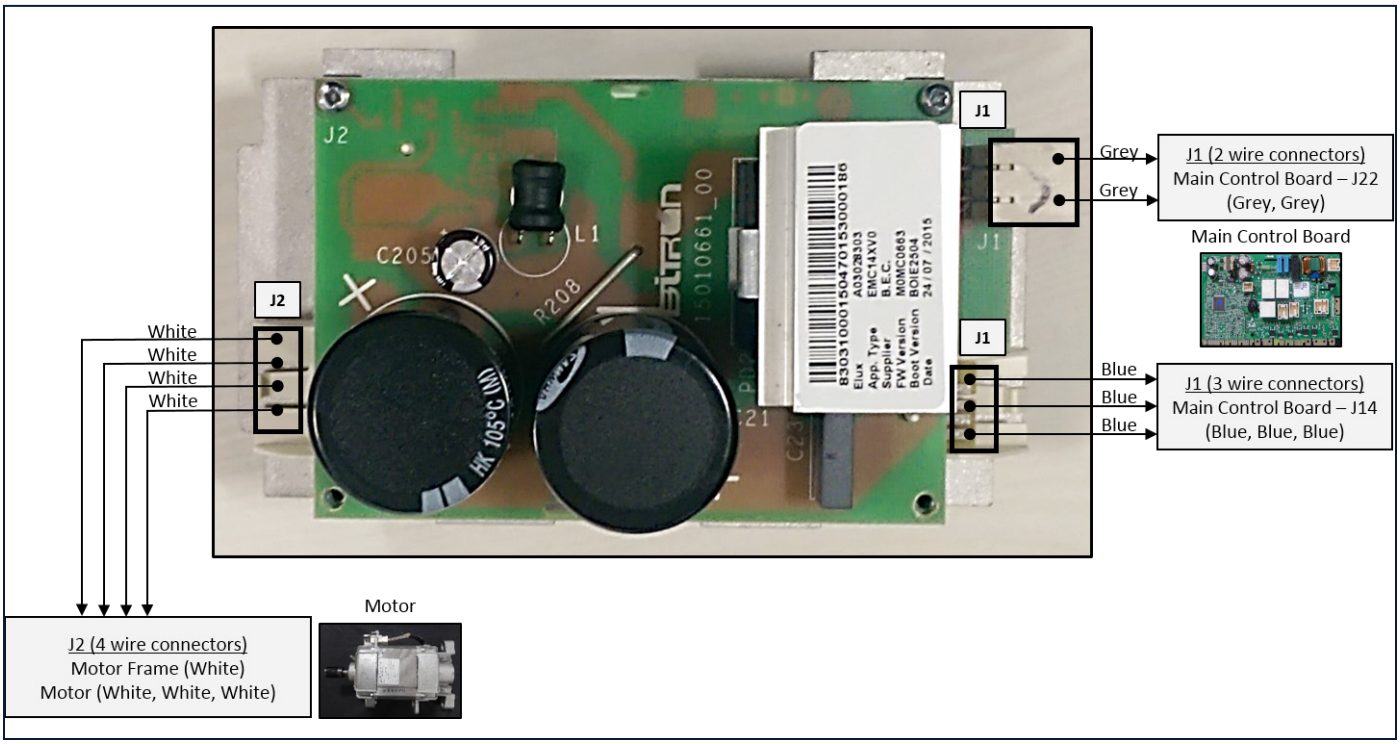
Motor Control Board

7.2 Schematic Diagrams - EFLS617SIW / EFLS517SIW / EFLW417SIW

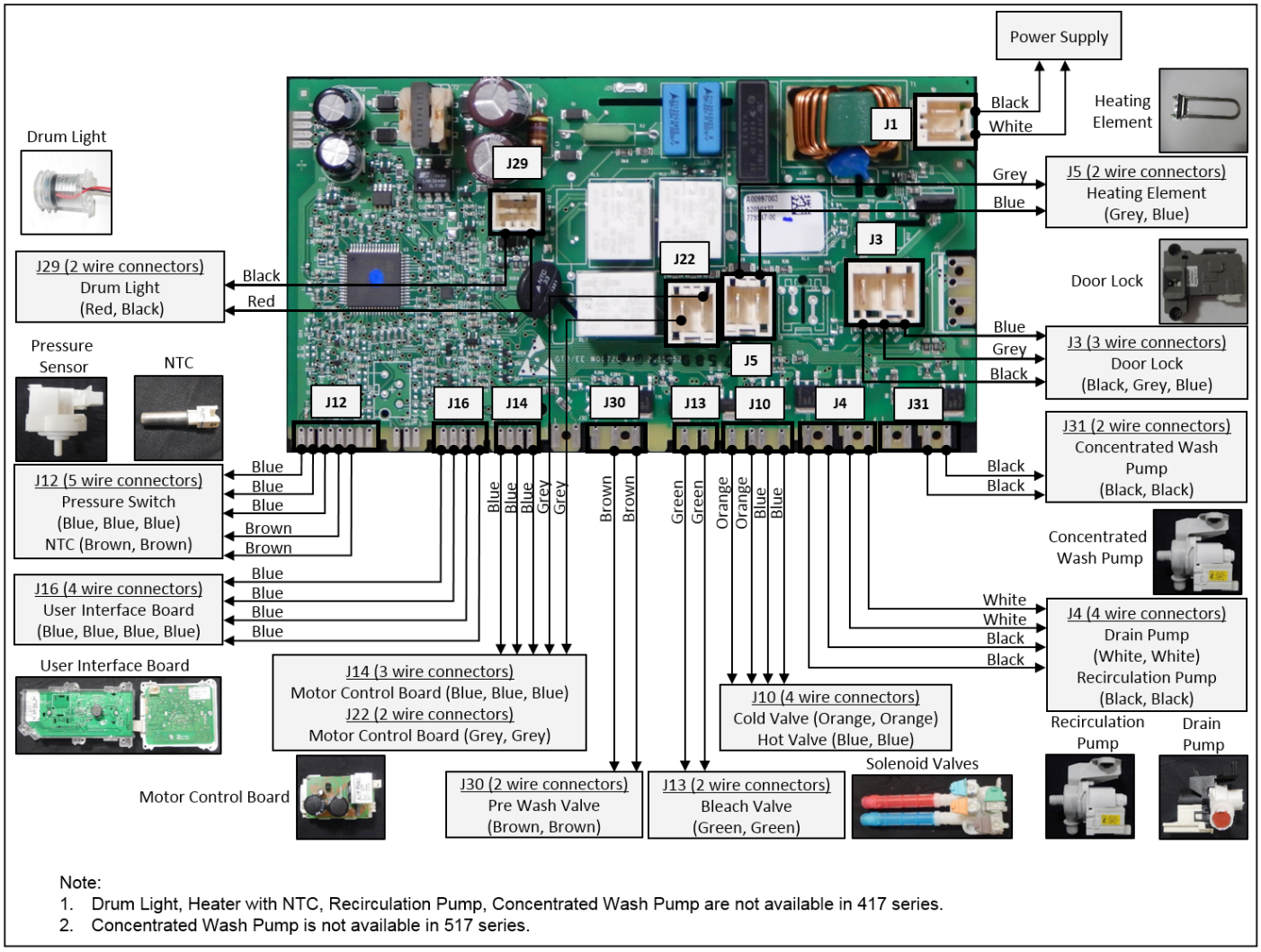
7.2.1 User Interface Board



7.2.2 Motor Control Board



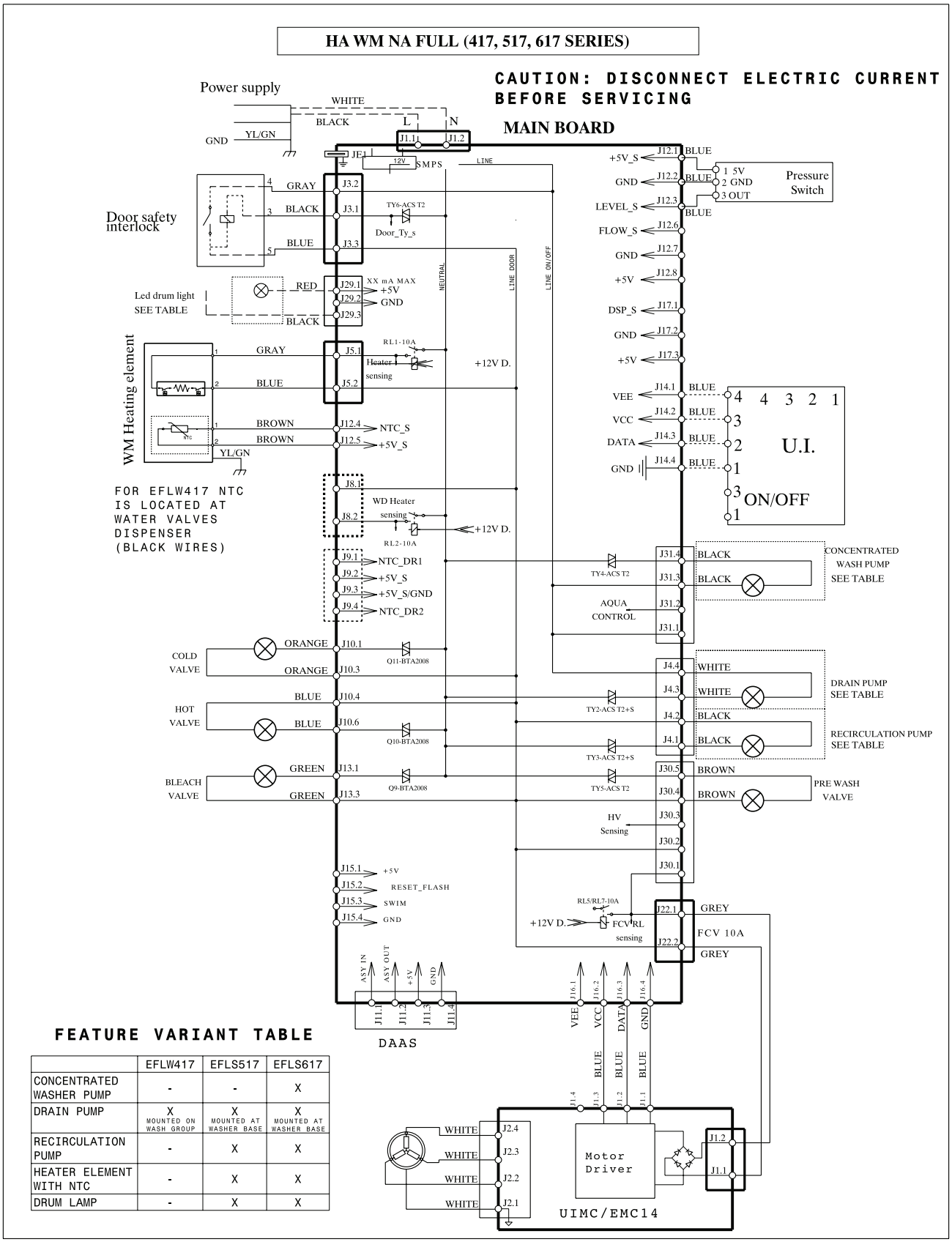
7.2.3 Main Control Board



Note:

1. Drum Light, Heater with NTC, Recirculation Pump, Concentrated Wash Pump are not available in 417 series.
2. Concentrated Wash Pump is not available in 517 series.

7.3 Wiring Diagram - EFLS617SIW / EFLS517SIW / EFLW417SIW



FEATURE VARIANT TABLE

	EFLW417	EFLS517	EFLS617
CONCENTRATED WASHER PUMP	-	-	X
DRAIN PUMP	X MOUNTED ON WASH GROUP	X MOUNTED AT WASHER BASE	X MOUNTED AT WASHER BASE
RECIRCULATION PUMP	-	X	X
HEATER ELEMENT WITH NTC	-	X	X
DRUM LAMP	-	X	X

8. Electrical Components – EFLS617SIW / EFLS517SIW /EFLW417SIW

Electrical Component Resistance and Specification Table

<table>
<tr><th>S. No.</th><th>Component</th><th>Resistance</th><th>Specification</th></tr>
<tr><td>1</td><td>Door Lock</td><td>--</td><td>Supply voltage 120 V (95-132 V 60Hz) / 230 V (180-265 V 50-60 Hz), Coil insulation: F</td></tr>
<tr><td>2</td><td>Dispenser Solenoid valve</td><td>Coils resistance @25°C 990±10% Ω</td><td>Cold water temperature-25 °C
Hot water temperature-60 °C
Coils room temperature-60 °C
Nominal Voltage-120 V
Voltage tolerance-(-15% + 10%)
Nominal Frequency-60 Hz</td></tr>
<tr><td>3</td><td>Motor</td><td>--</td><td>200 V, 4 A, 330 Hz. (Max.), RPM (Max.), - 18,600, Insulation Class-F</td></tr>
<tr><td>4</td><td>Heating Element
(Not applicable for 417 series)</td><td>13 Ω to 15 Ω</td><td>120 V, 60 Hz, 1000 W</td></tr>
<tr><td>5</td><td>NTC

(Not applicable for 417 series)</td><td><table><tr><th>Temp</th><th>Ω</th></tr><tr><td>0 °C</td><td>15771 ± 6.1%</td></tr><tr><td>30 °C</td><td>3891 ± 4%</td></tr><tr><td>40 °C</td><td>2573 ± 3.4%</td></tr><tr><td>50 °C</td><td>1742 ± 2.8%</td></tr><tr><td>60 °C</td><td>1204 ± 2.2%</td></tr><tr><td>70 °C</td><td>849 ± 2.4%</td></tr><tr><td>95 °C</td><td>383 ± 3.6%</td></tr></table></td><td>--</td></tr>
<tr><td>6</td><td>Pressure Sensor</td><td>--</td><td>5 ± 0.25 V DC, 5 mA (Max.)
85 °C operating temp (Max.)
44 Hz empty drum</td></tr>
<tr><td>7</td><td>LED Drum Light

(Not applicable for 417 series)</td><td>--</td><td>Everlight LED
ELSW-F91C1-OLPGS-C6500
350 mA (Max. LED Current)
Power 1 W
Min. Flux:35 Lumen (55 Typical)
White LED (Cold White) Typical 6500 K</td></tr>
<tr><td>8</td><td>Recirculation pump
(Not applicable for 417 series) and Concentrated Wash Pump (Not applicable for 417 and 517 series)</td><td>31.5 ± 10% Ω @20 °C</td><td>Nominal Voltage-120 V, 60 Hz, Insulation Class F (155), Working Voltage 95-132 V</td></tr>
<tr><td>9</td><td>Drain Pump</td><td>Winding Resistance-14 ± 10% Ω</td><td>Rated-120 VAC / 60 Hz, Working Voltage-95-132 V AC, Current and Power with Rotor locked-1.4 A, 80 W Max.</td></tr>
</table>

WARNING

When replacing the Pump, please refer to the code shown in the list of spare parts relating to the Appliance.

8.1 Pump

There are more than one pumps used for this model:

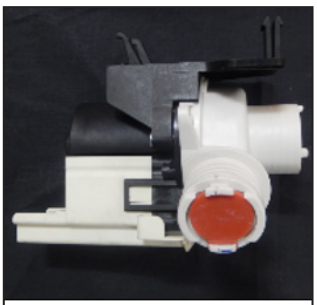
- Drain Pump
- Recirculation Pump
- Concentrated Wash Pump

8.1.1 General Characteristics

1. Wheel
2. Rotor
3. Stator

Recirculation and Concentrated Wash pump

The Drain pump, which drains the water at the end of the various washing cycle phases, is centrifugal and is activated by a synchronous motor. Also, Recirculation Pump is used for recirculating the wash water.



Drain Pump

The rotor consists of a permanent magnet and the direction of rotation can be either clockwise or anticlockwise.

It can turn by approximately a quarter of a revolution without turning the wheel. Consequently, if a foreign body is stuck in the wheel, the rotor can perform small movements clockwise and anticlockwise until the foreign body is released.

IMPORTANT

Synchronous pumps, when powered on empty (disconnected from the water circuit), may not start in some cases because their very construction makes them need an antagonist torque on the wheel to allow the rotor to move in one of the two directions.

The pumps should therefore only be tested once fitted to the Appliance after a little water has been filled. The pumps are powered by the Main Control Board through a TRIAC.

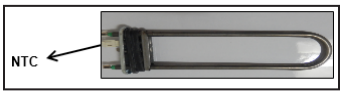
Component Specifications

S. No.	Component	Specifications
1	Drain Pump	Rated-120 VAC / 60 Hz, Working Voltage-95-132 VAC, Current and Power with Rotor locked-1.4 A 80 W Max. (Winding Resistance-14 ± 10% Ω)
2	Recirculation Pump (Not applicable for 417 series)	Nominal Voltage-120 V, 60 Hz, Insulation Class F (155), Working Voltage 95-132 V (Resistance-31.5 ± 10% Ω @20 °C)
3	Concentrated Wash Pump (Not applicable for 417 and 517 series)	Nominal Voltage-120 V, 60 Hz, Insulation Class F (155), Working Voltage 95-132 V (Resistance-31.5 ± 10% Ω @20 °C)

8.2 Heating Element

(Not applicable for 417 series)

8.2.1 General Characteristics



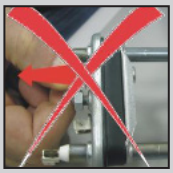
1. NTC probe
2. Heating element

The heating element of the washing water is armoured, that is, it is inserted in sealed tubular stainless steel casing. It is powered by Main Circuit Board. It is fitted with two thermal fuses which trip if

the temperature of the heating element exceeds the values for which they were calibrated.

WARNING

- **When replacing the heating element, please refer to the code shown in the list of spare parts related to the Appliance.**
- **It is strictly forbidden to tamper with the heating element in any way (For example, replace the NTC probe, and so on).**



Component Specifications

S. No.	Component	Specifications
1	Heating Element	120 V, 60 Hz, 1000 W (Resistance-13 Ω to 15 Ω)

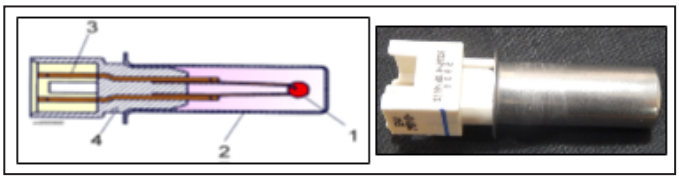
8.3 Temperature Probe (NTC)

(Not applicable for 417 series)

8.3.1 General Characteristics

1. NTC heating element
2. Metal capsule
3. Terminals
4. Plastic casing

An NTC type probe is used to control the drum



water (washing water) temperature: it is built in such a way that its internal resistance decreases as the temperature rises. This drop in resistance is detected by the electronic control which, when the desired temperature is reached, disconnects the heating element.

The temperature of the water is controlled by the circuit board by means of a NTC temperature probe incorporated in the heating element.

Component Specifications

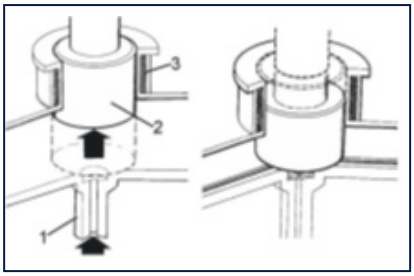
S. No.	Component	Specifications	
		Temp	Ω
1	NTC	0 °C	15771 ± 6.1%
		30 °C	3891 ± 4%
		40 °C	2573 ± 3.4%
		50 °C	1742 ± 2.8%
		60 °C	1204 ± 2.2%
		70 °C	849 ± 2.4%
		95 °C	383 ± 3.6%

8.4 Analog Pressure Sensor

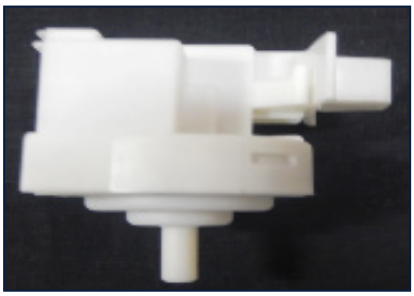
8.4.1 General Characteristics

The Electronic Pressure Sensor is an analog device that controls the water level in the tub, used in models with Electronic Control System, and it is directly connected to the Main Control Board (MCB).

1. Small pipe
2. Core
3. Oscillating coil



The Pressure Sensor is connected via a pipe to the pressure chamber.



When water is introduced into the tub, this creates a pressure inside the hydraulic circuit that causes the membrane to change position. This, in turn, modifies the position of the core inside the coil, thus changing the inductance and the frequency of the oscillating circuit.

The MCB recognizes how much water has been introduced into the tub according to the frequency. Operating frequency varies according to the quantity of water in the tub.

Pressure and Frequency Table

(At Water Level "0" mm (empty tub) Frequency will be 44.676 Hz)

Working Field (mm H2O)	Frequency (Hz)
0 ± 3 (No Water)	44.676 ± 0.083
75 ± 3	42.610 ± 0.083
150 ± 6	40.450 ± 0.173
225 ± 9	38.290 ± 0.259
300 ± 30	36.130 ± 0.840
380 ± 25	34.720 ± 0.700

Component Specifications

S. No.	Component	Specifications
1	Pressure Switch	5 ± 0.25 V DC, 5 mA (Max.) 85 °C operating temp (Max.)

8.5 Door Lock

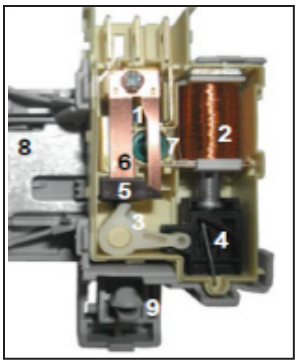
8.5.1 General Characteristics

The instantaneous door interlock allows the door to be opened as soon as the drum stops if the conditions described further are met.

Operating principle:

1. Solenoid protection PTC
2. Solenoid
3. Lifting assembly
4. Cam (Labyrinth)
5. Locking pin
6. Electrical contacts (main switch)
7. Door sensing switch
8. Cursor
9. Rod latch for manual door release

When the programme starts (**start / pause** button), the Main Control Board sends a voltage pulse lasting 20 msec to the valve (2) (at least 6 seconds should have passed since turning it on), which moves the



cam (4) to a locking position; the blocking pin (5) is pushed locking the cursor (8), and simultaneously the main switch contacts are shut (6).

When the programme ends or the **start / pause** button is pressed, the circuit board sends two additional 20 msec pulses (200 msec apart):

- The first pulse moves the cam (4) by another position, without releasing the pin (5).
- The second pulse (which is only sent if everything is in working order) moves the cam (4) to another position, which causes the pin (5) to return to its position and, therefore, release the interlock. The contacts of the main switch are simultaneously opened.

Component Specifications

S. No.	Component	Specifications
1	Door Lock	Supply voltage 120 V (95-132 V 60 Hz) / 230 V (180-265 V 50-60 Hz), Coil insulation: F

8.6 Three-Phase Asynchronous Motor – Inverter

8.6.1 Motor Characteristics

Three-Phase power is fed by the inverter. The phase shift between the phases is 120° and peak amplitude is 310 V.

It is possible to get an idea of the efficiency of the motor by measuring the resistance of the coils:

Terminal 1 and 2: 3 Ω to 6 Ω

Terminal 2 and 3: 3 Ω to 6 Ω

Terminal 3 and 1: 3 Ω to 6 Ω

Component Specifications

S. No.	Component	Specifications
1	Motor	200 V, 4 A, 330 Hz (Max.), RPM (Max.)-18,600, Insulation Class-F

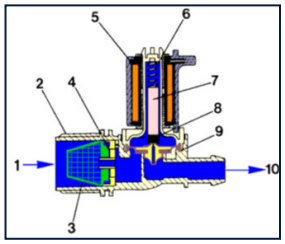
8.7 Solenoid Valves

- Any work on electrical Appliances must only be carried out by qualified personnel.
- Unplug the Appliance before accessing internal components.
- After disconnecting the plug from the socket, wait about 2 minutes before removing the MCB plastic cover, thus allowing any condensers to discharge and avoid an electric shock.

87.1 General Characteristics

This component introduces water into the detergent dispenser and is controlled electrically by the Main Control Board via TRIAC. The level of water in the tub is controlled by the Analog Pressure Sensor.

1. Water inlet
2. Solenoid valve body
3. Filter or needle trap
4. Flow reducer
5. Coil
6. Spring
7. Moving core
8. Rubber
9. Membrane
10. Water outlet



8.7.2 Operating Principle

When idle, the core pushed by a spring keeps the central hole of the membrane closed and so the latter hermetically seals the access to the water in inlet duct. When the coil is powered, the core is attracted, releasing the central hole of the membrane. Consequently, the valve opens.

8.7.3 Mechanical Jamming of the Solenoid Valve

The Solenoid Valve may jam or open without being actuated (which will cause flooding if the Pressure Sensor controlling the water level does not trip). If this occurs, the Electronic Control System (which continuously monitors the flow sensor) will lock the door, start the Drain Pump and display an Error simultaneously.

8.7.4 Low Water Pressure

The Flow Sensor may not generate a signal during the water fill phases, even though power is being supplied to the Solenoid Valve. This condition may result due to a closed water tap or clogged filter on the Solenoid Valve (with ensuing low water pressure). If this occurs, only a WARNING will be displayed and the cycle will continue for 5 minutes, after which an Error will be signalled.

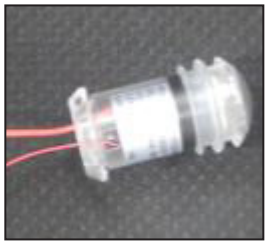
Component Specifications

S. No.	Component	Specifications
1	Dispenser Solenoid valve	Cold water temperature-25 °C Hot water temperature-60 °C Coils room temperature-60 °C Nominal voltage-120 V Voltage tolerance- (-15% + 10%) Nominal frequency-60 Hz (Coils resistance @25 °C 990 ± 10% Ω)

8.8 LED Drum Light

(Not applicable for 417 series)

The high power LED wall Washers are high power LED lights that are used for decorative lighting and highlight, or wash walls.



Component Specifications

S. No.	Component	Specifications
1	LED Drum Light	Everlight LED ELSW-F91C1-OLPGS-C6500 350 mA (Max. LED Current) Power 1 W Min. Flux: 35 Lumen (55 Typical) White LED (Cold White) Typical 6500 K

9. Top Panel Accessibility

Step: 1

Loosen the screws (See Fig. 1), and slide the Top Panel backwards until it gets unlocked (See Fig. 2). Now lift the Top Panel (See Fig. 3).

Fig. 1

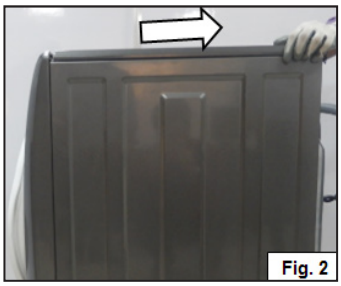


Fig. 2

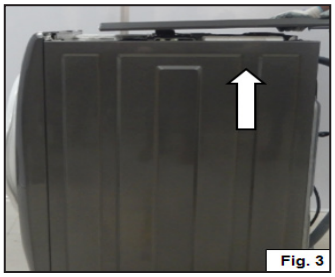
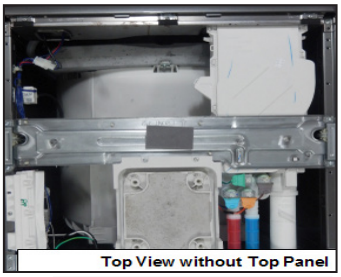
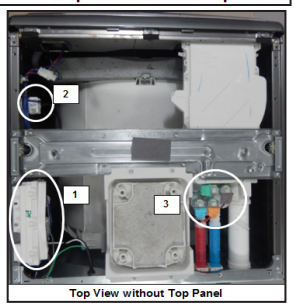


Fig. 3


Top View without Top Panel

From the Work Top we can access:

1. Main Control Board
2. Pressure Sensor
3. Solenoid Valve

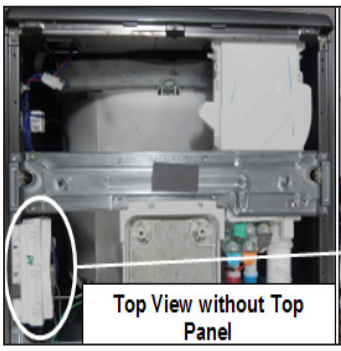


Top View without Top Panel

9.1 Main Control Board Assembly Accessibility

Step: 1

Loosen up the screw (See Fig.1), slide the board as shown (See Fig. 2), and detach the connectors (See Fig. 3).


Top View without Top Panel

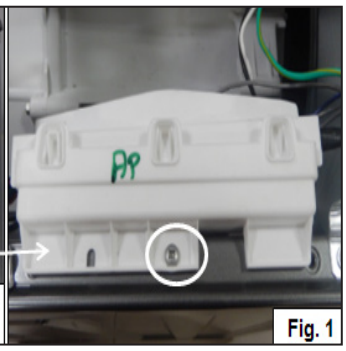


Fig. 1

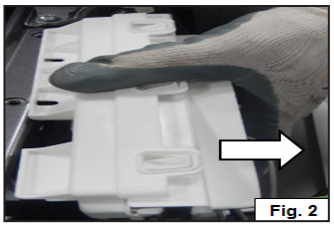


Fig. 2

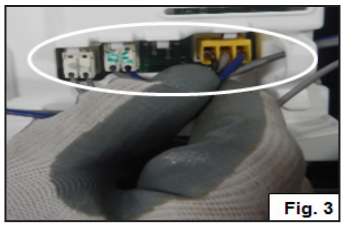


Fig. 3

Step: 2

Release the snaps (See Fig. 4), detach the remaining connectors (See Fig. 5), and take out the Main Control Board Assembly (See Fig. 6).

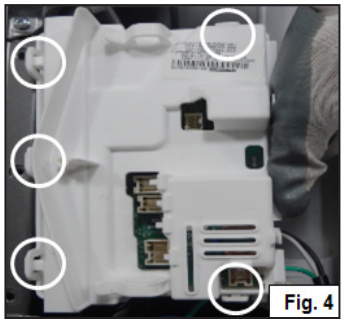


Fig. 4

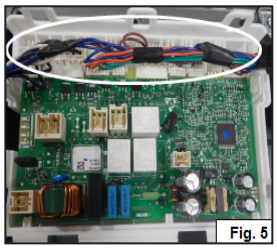


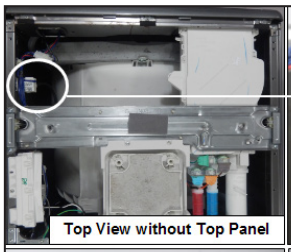
Fig. 5

Main Control Board Assembly Fig. 6

9.2 Pressure Sensor Accessibility

Step: 1

Rotate the Pressure Sensor in anticlockwise direction from the side panel (See Fig. 1), detach the connector (See Fig. 2), remove the tube (See Fig. 3), and take out the Pressure Sensor (See Fig. 4).


Top View without Top Panel

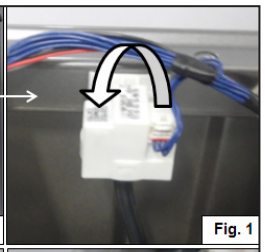


Fig. 1

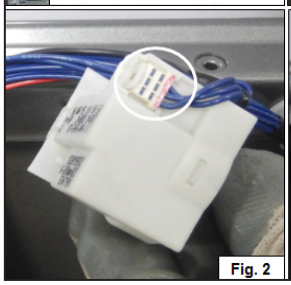


Fig. 2

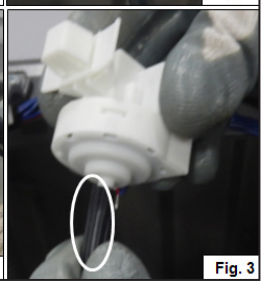
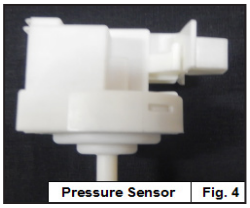


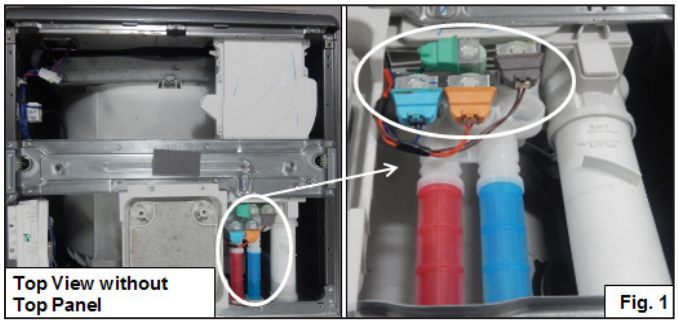
Fig. 3

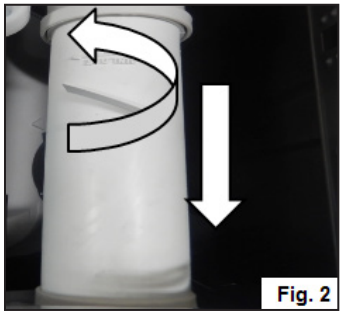

Pressure Sensor Fig. 4

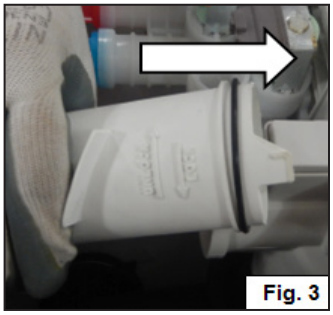
9.3 Solenoid Valve Accessibility

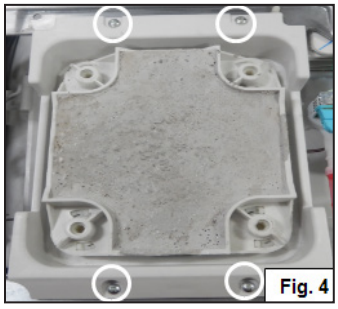
Step: 1

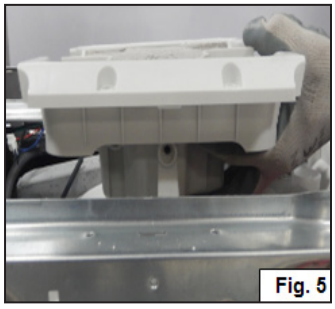
Detach the terminals from the Solenoid Valve (See Fig. 1), rotate the dispenser overflow tube in anticlockwise direction to unlock it, and pull it in the marked direction (See Fig. 2). Take out the dispenser overflow tube (See Fig. 3), loosen the screws of the counter weight (See Fig. 4), and lift the counter weight to take it out (See Fig. 5).





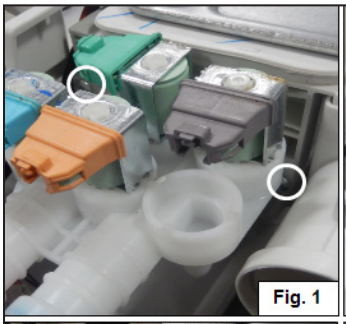


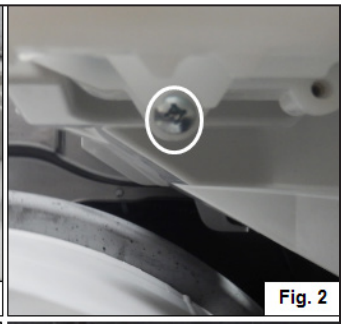


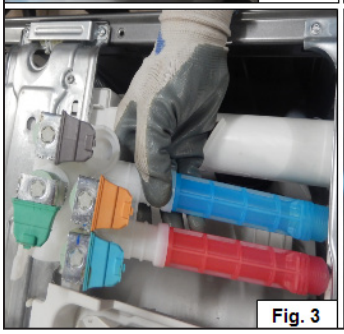


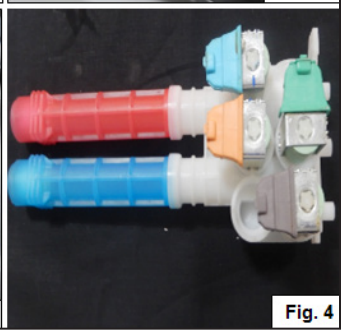
Step: 2

Loosen up the screws (See Fig. 1) and from the bottom of Solenoid Valve (See Fig. 2), detach the Solenoid Valve from the Dispenser (See Fig. 3 and Fig. 4).









10. Rear Panel Accessibility

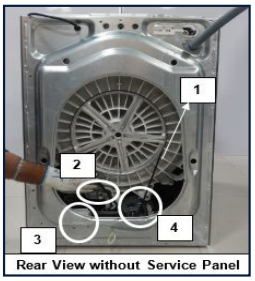
Step: 1

Loosen the screws to remove the Rear Access Panel (See Fig. 1).

From the Rear Panel we can access:

1. Belt
2. Heating Element Assembly (Heater and NTC)
3. Motor Control Board Assembly
4. Motor

Rear View Fig. 1



Rear View without Service Panel

10.1 Belt

Pull out Belt by rotating pulley in clockwise direction (See Fig. 1). Belt is shown in figure.

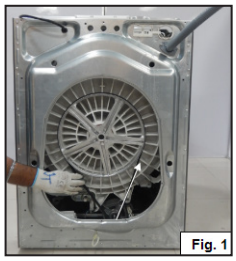


Fig. 1

Belt

10.2 Heating Element Assembly (Heater and NTC) Accessibility

(Not applicable for 417 series)

Step: 1

Detach the connectors of Heater Assembly (See Fig. 1), loosen the nut (See Fig. 2), pull the heater assembly from the tub (See Fig. 3), and pull out the NTC from the heater assembly (See Fig. 4). Heater Assembly is shown in Fig. 5.

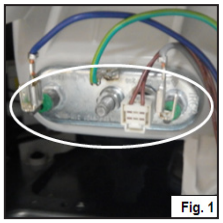


Fig. 1

Fig. 2

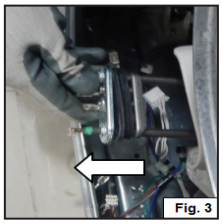


Fig. 3

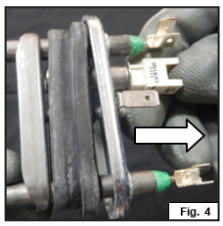
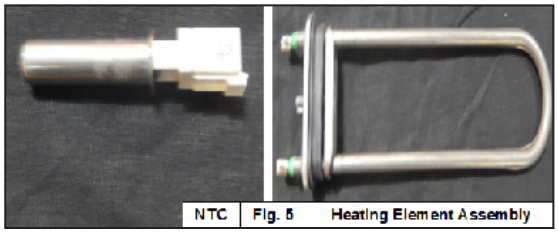


Fig. 4


NTC Fig. 5 Heating Element Assembly

10.3 Motor Accessibility

Step: 1

Detach the connector (See Fig. 1), remove the wire clip (See Fig. 2), loosen the bolts (See Fig. 3), and take out the Motor from the machine as shown (See Fig. 4).

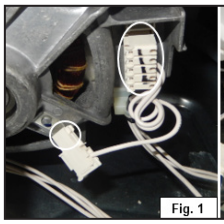


Fig. 1

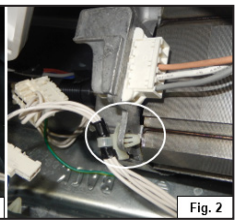


Fig. 2

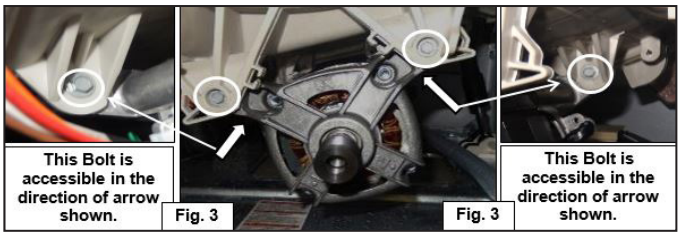

This Bolt is accessible in the direction of arrow shown. Fig. 3

Fig. 3 This Bolt is accessible in the direction of arrow shown.

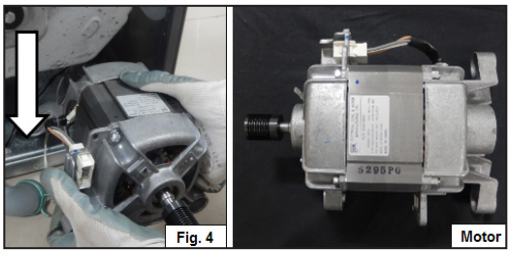


Fig. 4

Motor

10.4 Motor Control Board Assembly Accessibility

Step: 1

Loosen the screw from inside the Rear Panel (See Fig.1), and the one from outside of the rear panel (See Fig. 2). Release the snaps from the upper side (See Fig. 3) and lower side (See Fig.4) of the Motor Control Assembly for opening the Motor Control Board box. Detach the connectors (See Fig. 5). Motor Control Board Assembly is shown in figure.

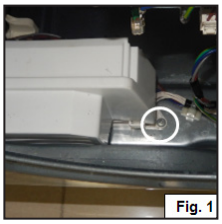


Fig. 1

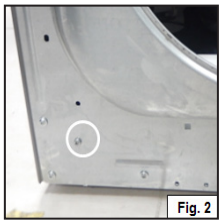


Fig. 2

Fig. 3

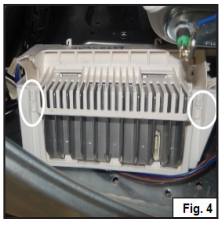


Fig. 4

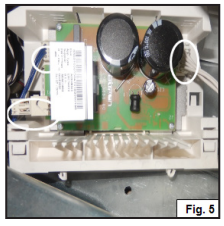
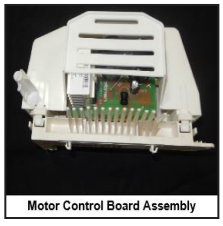


Fig. 5


Motor Control Board Assembly

11. Door Lock Accessibility

Loosen the screws of Door Lock which is fixed to the Front Panel (See Fig.1). Detach the connectors (Fig. 2), and loosen the screws as shown (See Fig. 3). Door Lock is removed from the Front Panel as shown (See Fig.4).

Front View

Fig. 1

Fig. 2

Fig. 3

Fig. 4

12. Front Panel Accessibility

Step: 1

Release the bellow clamp and loosen the Bellow as shown (See Fig. 1, 2, and 3). Pull out the Dispenser as shown (See Fig. 4) and loosen the screws as shown (See Fig. 5).

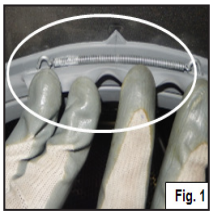


Fig. 1

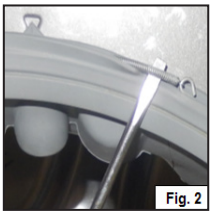


Fig. 2

Fig. 3

Fig. 4

Fig. 5

Step: 2

Loosen the 3 screws at the top (See Fig. 1) and 4 screws at the bottom (See Fig. 2) of Front Panel. Lift the Front panel until it is unlocked from the Side Panel (See Fig. 3) and detach the connector (See Fig. 4 and 5). Front Panel with User Interface Board Assembly is shown in figure.

Fig. 3

Fig. 1

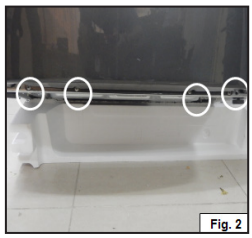


Fig. 2

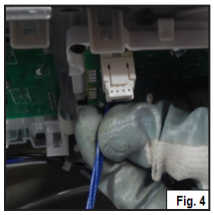


Fig. 4

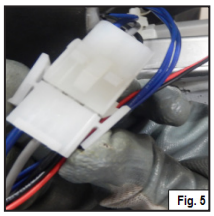


Fig. 5

From the Front Panel we can access:

1. Control Panel

12.1 Control Panel Accessibility

Loosen the screws, release the snaps (See Fig. 1), and loosen the remaining screws (See Fig. 2) to remove the User Interface (UI) Board Assembly (See Fig. 3).

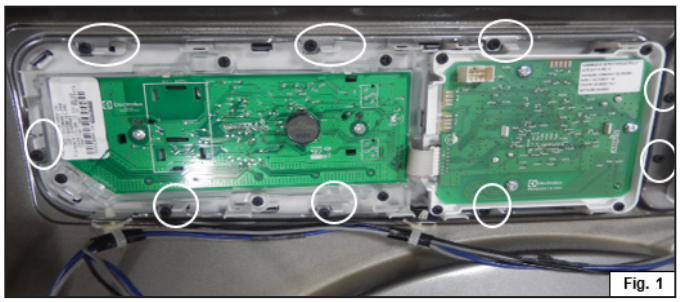


Fig. 1

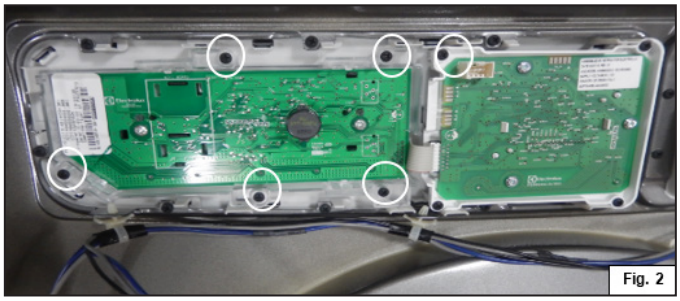


Fig. 2

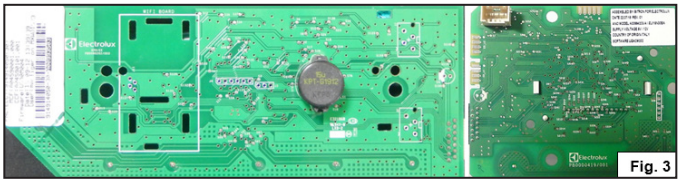
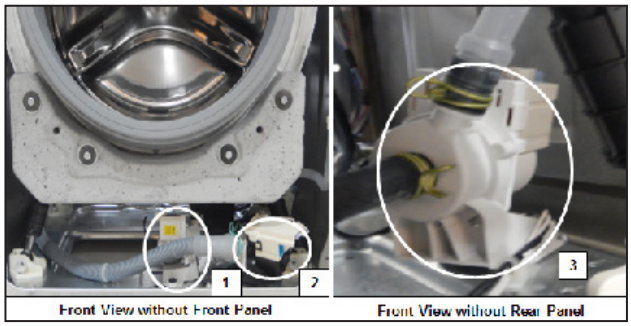


Fig. 3

After Front Panel removal, the following components can be accessed from the Washer:

1. Concentrated Wash Pump
2. Drain Pump
3. Recirculation Pump



12.2 Concentrated Wash Pump Accessibility

(Not applicable for 417 and 517 series)

Step: 1

Remove the circlip (See Fig. 1), loosen the screw (See Fig. 2), then detach the connector (See Fig. 3) to separate the Concentrated Wash Pump

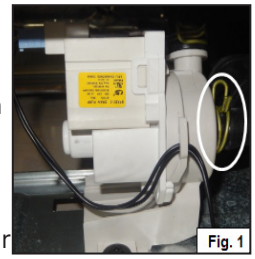


Fig. 1

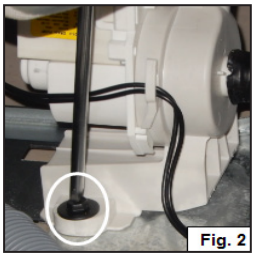


Fig. 2

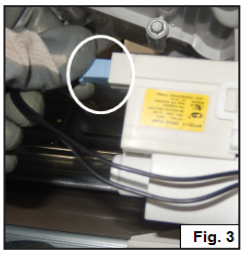


Fig. 3

Concentrated Wash Pump

12.3 Drain Pump Accessibility

Remove the circlip (See Fig. 1), loosen the screw (See Fig. 2), then detach the connector (See Fig. 3) and release the snaps (See Fig. 4) to separate the Drain Pump.

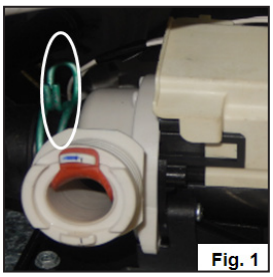


Fig. 1

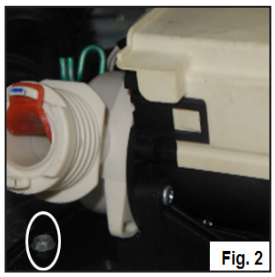


Fig. 2

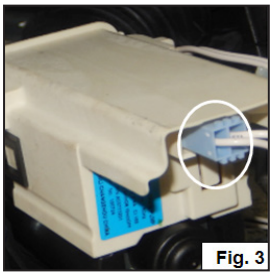
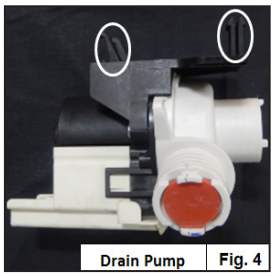


Fig. 3


Drain Pump Fig. 4

12.4 Recirculation Pump Accessibility

(Not applicable for 417 series)

Remove the circlip (See Fig. 1), loosen the screw (See Fig. 2), and detach the connector (See Fig. 3) to separate the Recirculation Pump.

Fig. 1

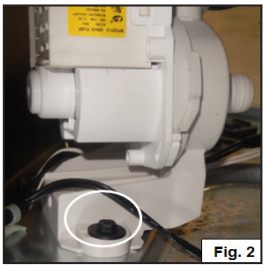


Fig. 2

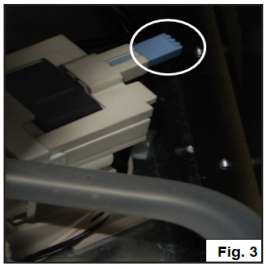
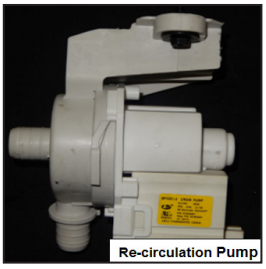


Fig. 3


Re-circulation Pump

12.5 Leveling Leg Accessibility

Incline the Dryer as shown (Fig. 1). Loosen the Leveling Leg with the help of a wrench (Fig. 2). Similarly, remove the rear side Leveling Leg by inclining the Washer in other direction.

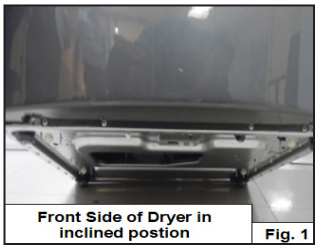

Front Side of Dryer in inclined postion Fig. 1

Fig. 2

Leveling Leg

12.6 Drum Light Accessibility

(Not applicable for 417 series)
Remove the Drum Light from the Bellow as shown in (Fig. 1). Remove the splice (Fig. 2) to take out Drum Light from the Washer.

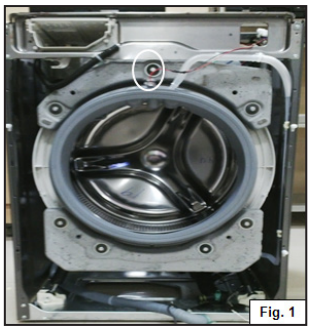


Fig. 1

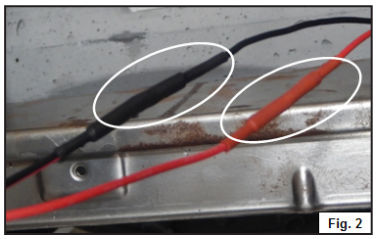
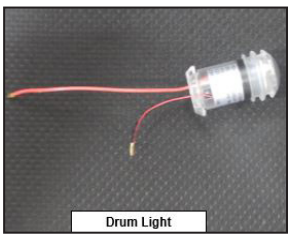


Fig. 2


Drum Light

13. Diagnostic System – EFLS617SIW / EFLS517SIW / EFLW417SIW

This information is intended for the use of Qualified Technicians only.

⚠ CAUTION

Disconnect Electric Current Before Servicing.

Acronyms	
MB	Main Board (Board located inside the machine, on top right just near the rear panel)
MC	Motor Control
UI	User Interface (Board located inside the control panel)
DL	Door Lock

13.1 Diagnostic Mode

The diagnostic test is used to check the functionality of individual component.

Enter Diagnostic Mode:

1. Press **power** to turn machine ON.
2. Set cycle to **normal**.
3. Press the **start** button.
4. Power OFF machine by pressing the **power** button.
5. Power ON machine by pressing the **power** button again.
6. Within 7 seconds, simultaneously hold **temp** + **set** buttons together for 3 seconds.
7. Diagnostic Mode is set when LEDs start blinking in sequence, which is the 'Lights / Buttons' test position.

To Scroll Through the Tests:

- Tests are selected by using the same method used to select cycles, that is, press **cycles** button on Model 417 holding a little longer from the test 00 to 01 transition, and turn the rotary knob on Models 517 and 617. For Model 417, press the **temp** key to go back to the previous test.
- Test numbers are briefly displayed when each test is selected. The test numbers also correspond to the selector LEDs numbered from 1 at the top going down and then looping to the top of the Temp Column.

Test # (Model)	Test Name	Components under test	Test conditions	Displayed feedback
‘00	Lights / Buttons Test	LEDs, LCD, touch buttons	The display elements and few LEDs cycle ON and OFF in a sequence.	Press LEDs of touch key or press Power button.
‘01	Wash Compartment	Door Lock, Hot Valve	Valve stays ON till water level reaches 140 mm and the door remains locked for 5 minutes.*	Water Level
‘02	Bleach Compartment	Door Lock, Bleach Valve	Valve stays ON till water level reaches 140 mm and the door remains locked for 5 minutes.*	Water Level
‘03	Softener Compartment	Door Lock, Cold Valve, Bleach Valve	Valve stays ON till water level reaches 140 mm and the door remains locked for 5 minutes.*	Water Level
‘04	Stain Compartment	Door Lock, Pre-wash Valve	Valve stays ON till water level reaches 140 mm and the door remains locked for 5 minutes.*	Water Level
‘05	Door Unlock	Drum Light	Drum Light turns ON when the door is open.	-- --
‘06	Heater and Motor	Pressure Sensor, Cold Valve, Motor, NTC, Door Lock	Motor moves after machine fills **60 mm** of water. Max. duration of the test is 8 minutes.	NTC reading
‘07 (41)	Empty	None	None	Display shows n0 for empty test
‘07 (51,61)	Recirculation Pump	Recirculation Pump, Pressure Sensor, Cold Valve, Motor, Door Lock, Drum Light	Motor moves after machine fills 140 mm of water and Recirculation Pump turns ON. Max. duration of the test is 8 minutes.	rP
‘08 (41,51)	Empty	None	None	Display shows n0 for empty test
‘08 (61)	Concentrate Wash Pump	Concentrate Wash Pump, Door Lock, Drum Light	CW Pump turns ON for max. 5 minutes. Need power meter to check for CW Pump working.	Cp
‘09	Drain Pump and Spin	Drain Pump, Motor, Door Lock	Drain Pump turns ON until empty, then motor starts spinning until max. RPM for 30 seconds and the door remains locked for 6 minutes.*	-- --
‘10	All valves ON	Door Lock, All Valves	Valves stay ON till water level reaches 140 mm, then the door remains locked for 5 minutes.*	Water Level
‘11	Error History	Errors in memory	Errors are displayed in order of history, displaying the most recent first. Pressing Temp + Set keys together clears the history.	E precedes the 2 character error code, alternating through the last 3 errors.

NOTE

The door is locked in the test step, however, it can change without delay in another test step or on exit from diagnostic mode.

Exit Diagnostic Mode

To return the Washer to normal operation

- Hold the **power** button for 3 secs when not in '00' test (Lights / Buttons), or unplug the unit

Factory Default Reset

1. Press **power** button for power ON and wait for 10 seconds.

2. Simultaneously hold **soil** + **option** buttons for 3 seconds.

13.2 Demo Mode

WARNING

This information is intended for Qualified Technicians Only.

CAUTION

Disconnect Electric Current Before Servicing.

Demo Mode

The Demo works in two ways: interactive mode and automatic loop.

1. The interactive mode enables the customer to use interface without activating the water and heat. The machine behaviour appears similar to operation. The **start** option locks the door, the drum light turns ON and the ETR is decreased each second. No water load / drain is executed.

2. If no one interacts with the interface for 3 minutes, or **start** button has not been pushed, the machine goes into an automatic loop instead, simulating the cycle execution is only on display. This automatic loop cycle continues until it is interrupted by the user interface and it goes back to the interactive mode.

Enter Demo Mode:

1. Press **power** button to switch ON the machine via Power button;

2. Turn the selector to the 6th position from the top clockwise;

3. Simultaneously hold **temp** and **set** buttons for 3 seconds;

4. The message "dn" blinks 3 times on cycle time digits;

5. When no acknowledgement is received, switch the machine OFF and repeat sequence from the beginning.

Every time the machine is switched ON, Demo mode is automatically recalled; this occurrence is signalled at the start-up by the text "dM" blinks 3 times on cycle time digits. Unplugging the unit will not clear the DEMO mode.

Exit Demo Mode:

1. Redo the enter demo mode sequence of actions described above or go to the next step.

2. Press the reset combination (**soil** + **options** buttons) anytime.

3. If the action is acknowledged, the machine reboots in normal mode.

SAFETY WARNING

If power is removed during this test, the door can be opened. To prevent injury, do not put your hands inside when the tub is rotating.

13.3 Error Code Table

Error Code Table				
S. No.	**Error Code**	**Fault Condition**	**UI Notification**	**Page No**
1	E11	Fill Time Too Long	YES	35
2	E13	Water Leak in Tub or in Pressure Sensor	NO	37
3	E21	Water Not Pumping Out Fast Enough	YES	38
4	E23	Drain TRIAC Error	NO	39
5	E24	Drain TRIAC Error Sensing	NO	39
6	E31	Electronic Pressure Switch Error	NO	40
7	E32	Pressure Sensor Calibration Problem	NO	40
8	E35	Pressure Sensor Indicates Water Overfill	NO	41
9	E38	Air Trap Clogged	NO	41
10	E41	Control Board Thinks the Door Switch is Open	YES	42
11	E42	Door Lock Device Failure	NO	42
12	E43	Door Lock TRIAC Failure	NO	42
13	E44	Door Closed Sensing Failure	NO	42
14	E45	Line Door Sensing Failure	NO	42
15	E55	Under Speed	NO	44
16	E57	High Current on Inverter	NO	43
17	E58	High Current on Motor Phase	NO	48
18	E59	No Spin Signal for 3 Seconds	NO	44
19	E5A	High Temperature on Control Due to Overload	NO	46
20	E5B	Motor Control Under Voltage	NO	47
21	E5C	High Voltage Experienced by Motor Control	NO	47
22	E5D	Communication Problem with Motor Control	NO	48
23	E5E	Communication Problem from Motor Control	NO	48
24	E5F	Motor Control is Continuously Resetting	NO	48
25	E62	Wash Temperature Too High	NO	49
26	E66	Heater Relay Problem	NO	50
27	E68	Current Leakage to Ground on Heater or Wiring	NO	50
28	E69	Heater Open	NO	50
29	E6A	Heater Relay Sensing Problem	NO	50
30	E71	Drum Water NTC Failure (Tub Heater)	NO	51
31	E74	Wash Temperature Does Not Increase	NO	51
32	E84	Recirculation Pump TRIAC Series	NO	52
33	E85	Recirculation Pump TRIAC	NO	52
34	E83	Wrong Selector Reading	NO	53
35	E86	Incorrect User Interface Selection Table	NO	53
36	E87	User Interface Micro-Controller Fault	NO	53

Error Code Table				
S. No.	**Error Code**	**Fault Condition**	**UI Notification**	**Page No**
37	E91	Communication Error User Interface to Control Board	NO	53
38	E92	User Interface_Main Board Communications Error	YES	53
39	E93	Console or Main Board Control Problem	YES	54
40	E94	Main Board Control Problem	YES	54
41	E97	Console or Main Board Control Problem	YES	54
42	E98	Console Control Problem	NO	54
43	E9C	User Interface Configuration Problem	YES	55
44	E9E	Key Stuck or Contaminated	NO	55
45	EH1	Frequency of Power Out of Limits	YES	56
46	EH2	Supply Voltage Too High	YES	56
47	EH3	Supply Voltage Too Low	YES	56
48	EHE	Control Relay Fault	NO	56
49	EHF	Control Relay Sense Fault	NO	56
50	EF2	Too Much Soap or Wrong Type	YES	57
51	EF5	Load Unbalanced	NO	57
52	EF6	Control Reset	NO	58
53	EF9	Hot Valve Warning	NO	58

E11	**E11: Fill Time Too Long**	E11
	Water Tap closed, Water Flow Rate too low, Pressure Sensor defective, Inlet Valve defective or Air Tube kinked.	

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Run the diagnostic cycle test, and check if hot and cold inlet valves are working?

YES

Is the drain pipe positioned correctly and not causing the siphon effect? (See Fig. 1)

NO → Repair the drain circuit, and repeat the diagnostic cycle to check for any further errors.

YES

Is the incoming water pressure above 20 psi?

NO → Correct the pressure problem in the customer's place and repeat the diagnostic cycle to check for any further errors.

YES

Is there any kinked or blocked incoming water hoses?

YES → Repair the incoming hoses and repeat the diagnostic cycle to check for any further errors.

NO

Is the Pressure Sensor air tube connected properly without kinking and leaking? (Disconnect the tube, and blow to ensure no obstruction.)

NO → Repair the air hose on the pressure switch, and repeat the diagnostic cycle to check for any further errors.

YES

Is the frequency of Pressure Sensor between 44.5 Hz to 45 Hz? (Measure it on the Pressure Sensor wiring connector at Main Control Board when machine is powered with empty tub (No water).) (See Fig. 2)

NO → Replace the Pressure Sensor, and repeat the diagnostic cycle to check for any further errors.

YES

Remove the power from the Washer. Did the water fill stop?

YES → Replace the Pressure Sensor and repeat the diagnostic cycle to check for any further errors.

NO

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

NO → See Next Page

Troubleshooting Based on Error Codes

Is one or all the solenoid valves not working?

NO → Check whether the tap is open if the water pressure is too low and make sure the tubes are connected and not kinked. (See Fig. 3)

YES ↓

Is the resistance measurement of the solenoid valve approximately 990 Ω ± 10%? (Measure it directly on the solenoid valve without wiring.) (See Fig. 4)

NO → Replace the solenoid valve, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Reconnect the connector and measure approximately 990 Ω ± 10% on the solenoid valve wiring connector on the circuit board side (See Fig. 5). Is the solenoid valve wiring OK?

NO → Replace / Repair the wiring and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

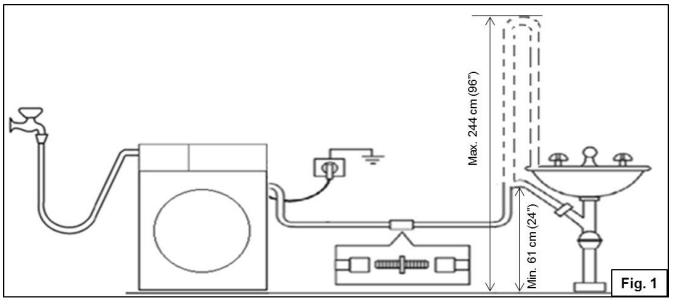
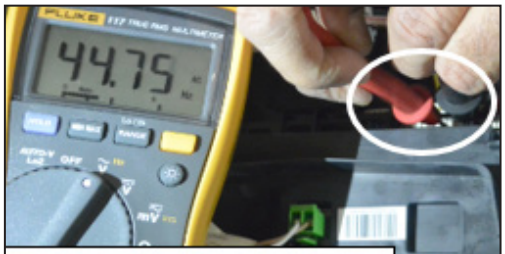


Fig. 1



Measure between connection J12-1 and J12-2 of Main Control Board
Fig. 2

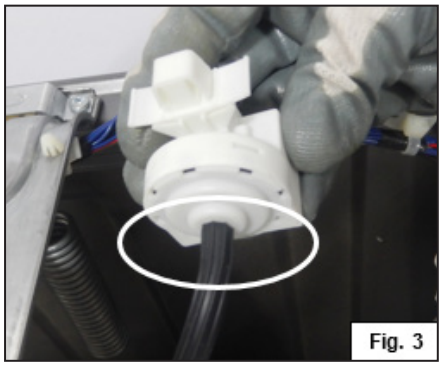


Fig. 3

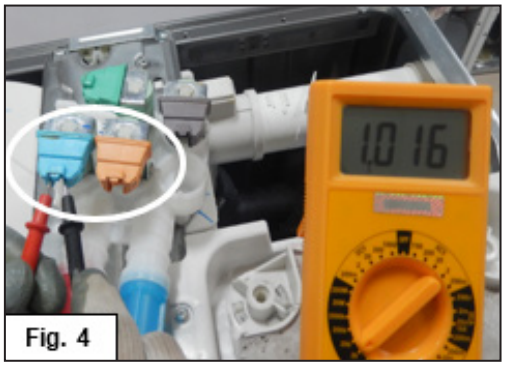


Fig. 4

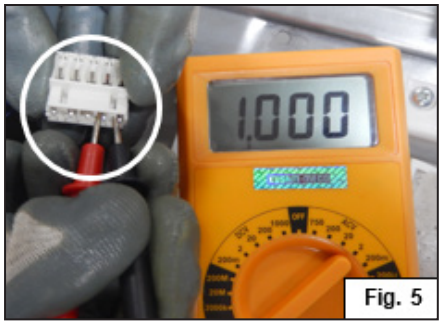


Fig. 5

E13	**E13: Water Leak in Tub or in Pressure Sensor**	**E13**
	Maximum overall water fill time exceeded (sum of all water fills between one drain phase and the next to avoid exceeding the maximum volume).	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Check for leakage in Washer. Is the Washer leaking water?
- YES → Repair water leak, and repeat the diagnostic cycle to check for any further errors.
- NO ↓

Is drain hose 8" or less into stand pipe?
- NO → Adjust it.
- YES ↓

Check if the air tube is connected properly without kinking and leaking? (Disconnect the tubes, and blow into them to make sure the system is unobstructed). (See Fig. 1)
- NO → Replace / Repair the air tube, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the frequency of Pressure Sensor between 44.5 Hz and 45 Hz? (Measure it on the Pressure Sensor wiring connector at Main Control Board when machine is powered with empty tub (No water).) (See Fig. 2)
- NO → Replace Pressure Sensor, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

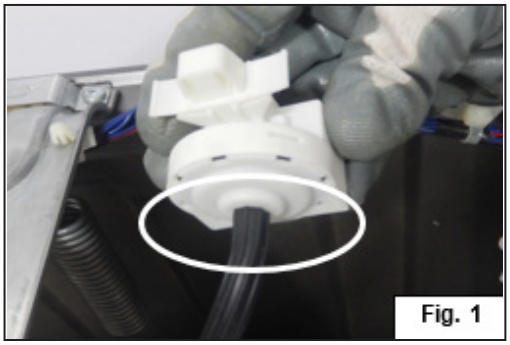


Fig. 1

Measure between connection J12-1 and J12-2 of Main Control Board

Fig. 2

Troubleshooting Based on Error Codes

E21	**E21: Water Not Pumping Out Fast Enough**	E21
	Drain Pipe blocked, Drain Pump defective, Pressure Sensor defective, or Main Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Is the input power supply 120 VAC at the Drain Pump?
- NO → Check wiring connections and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the drain filter clean (If filter available)?
- NO → Clean the filter and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the drain system OK? (Drain pipe and water system of the home). (See Fig. 1)
- NO → Disconnect and check the drain system, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the resistance measurement of the drain pump approximately 13 Ω to 16 Ω? (Measure it directly on the connector on the board between J4-3 and J4-4.) (See Fig. 2)
- NO → Is the resistance measurement of the drain pump approximately 13 Ω to 16 Ω? (Measure it directly on the pump.) (See Fig. 3)
  - NO → Replace the drain pump, and repeat the diagnostic cycle to check for any further errors.
  - YES → Check / Replace the wiring, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the pump rotor mechanically blocked or broken?
- YES → Clean / Replace the drain pump, and repeat the diagnostic cycle to check for any further errors.
- NO ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

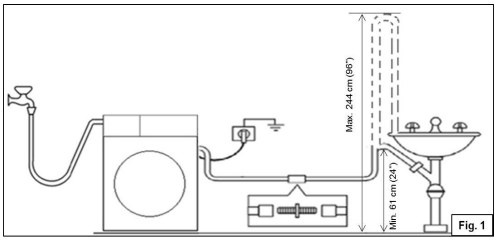


Fig. 1

Fig. 2

Fig. 3

E23	**E23: Drain TRIAC Error** Drain Pump defective or Main Circuit Board defective.	**E23**
E24	**E24: Drain TRIAC Error Sensing** Drain Pump defective, and Main Circuit Board defective.	**E24**

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Is the input power supply 120 VAC at the Drain Pump?
- NO → Check wiring connections and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the drain system OK? (Drain pipe and water system of the home.)
- NO → Disconnect and check the drain system and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the resistance measurement of the Drain Pump approximately 13 Ω to 17 Ω? (Measure it on the board side between terminal J4-3 and J4-4.) (See Fig. 1)
- NO → Is the resistance measurement of the Drain Pump approximately 13 Ω to 17 Ω? (Measure it directly on the pump.) (See Fig. 2)
  - NO → Replace the pump, and repeat the diagnostic cycle to check for any further errors.
  - YES ↓ Check / Replace the wiring, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Measure it between pump connectors from main board and the Appliance body. Is resistance value not "0"?
- YES ↓

Check / Replace the wiring, and repeat the diagnostic cycle to check for any further errors.
- NO → Replace the Main Circuit Board and repeat the diagnostic cycle to check for any further errors.

Fig. 1

Fig. 2

Troubleshooting Based on Error Codes

E31	**E31: Electronic Pressure Switch Error**	**E31**
	Pressure Sensor defective or Main Circuit Board defective.	
E32	**E32: Pressure Sensor Calibration Problem**	**E32**
	Pressure Sensor defective or Main Control Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Check if air tube is connected properly without kinking and leaking? (Disconnect the tubes, and blow into them to make sure the system is unobstructed.) (See Fig. 1)

NO → Replace / Repair the air tube, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Is the frequency of Pressure Sensor between 44.5 Hz and 45 Hz? (Measure it on the Pressure Sensor wiring connector at Main Control Board when machine is powered with empty tub (No water).) (See Fig. 2)

NO → Replace Pressure Sensor and repeat the diagnostic cycle to check for any further error.

YES ↓

Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

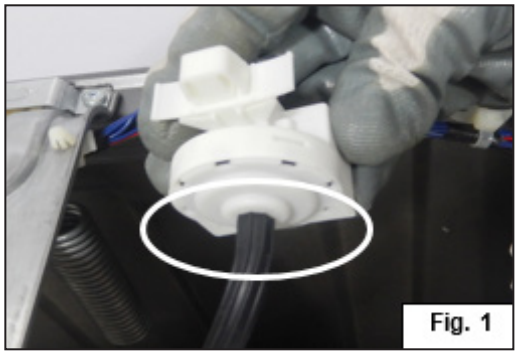
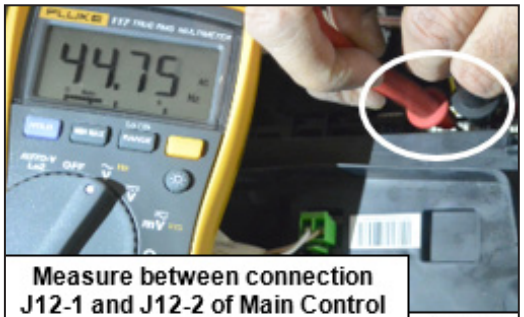


Fig. 1



Measure between connection J12-1 and J12-2 of Main Control Board

Fig. 2

E35	**E35: Pressure Sensor Indicates Water Overfill**	**E35**
	Water Inlet Valve defective, Air Tube kinked, Main Control Board defective.	
E38	**E38: Air Trap Clogged**	**E38**
	Water Inlet Valve defective, Air Tube kinked, Main Control Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Is the water level above 4.5 inches?
- NO → Replace Pressure Sensor and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Check if the air tube is connected properly without kinking and leaking? (Disconnect the tubes and blow into them to make sure the system is unobstructed.) (See Fig. 1)
- NO → Replace / Repair the air tube, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the frequency of Pressure Sensor between 44.5 Hz to 45 Hz? (Measure it on the Pressure Sensor wiring connector at Main Control Board when machine is powered with empty tub (No water).) (See Fig. 2)
- NO → Replace Pressure Sensor and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Remove power from Washer. Does the water stop coming in?
- NO → Replace the water valve assembly and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the resistance measurement of the Solenoid Valve approximately 990 Ω ± 10% ? (Measure it directly on the Solenoid Valve without wiring.) (See Fig. 3)
- NO → Replace the Solenoid Valve, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Reconnect the connector and measure approximately 990 Ω ± 10% on the Solenoid Valve wiring connector on the circuit board side between J10-1 and J10-3, J10-4 and J10-6. Is the Solenoid Valve wiring OK? (See fig. 4)
- NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

Troubleshooting Based on Error Codes

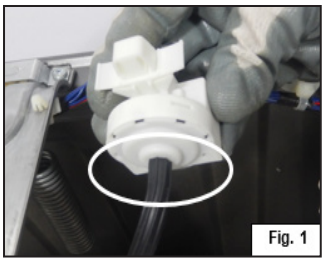
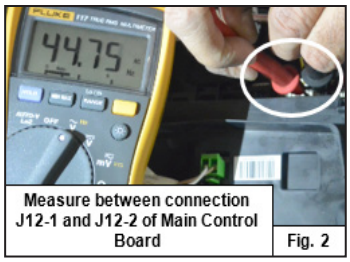


Fig. 1


Measure between connection J12-1 and J12-2 of Main Control Board
Fig. 2

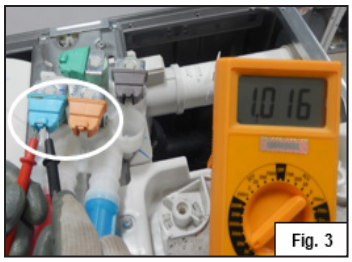


Fig. 3

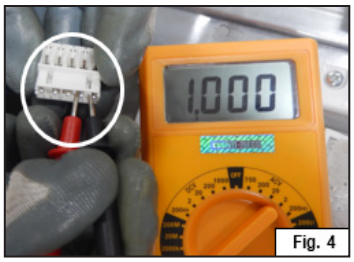


Fig. 4

E41	**E41: Control Board Thinks Door Switch Is Open** Lid Lock Device defective, Main Control Board defective.	**E41**
E42	**E42: Door Lock Device Failure** Lid Lock Device defective, Main Control Board defective.	**E42**
E43	**E43: Door Lock TRIAC Failure** Lid Lock Device defective, Main Control Board defective.	**E43**
E44	**E44: Door Closed Sensing Failure** Lid Lock Device defective, Main Control Board defective.	**E44**
E45	**E45: Line Door Sensing Failure** Lid Lock Device defective, Main Control Board defective.	**E45**

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Check if any obstacles stick to the Lid Lock which prevents from locking the door?

YES → Clear the obstacle, and repeat the diagnostic cycle to check for any further errors.

NO ↓

Check the continuity for the Lid Switch. Is the Lid Switch OK?

NO → Replace the Lid Switch, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Lid Lock device (with wire), and repeat the diagnostic cycle to check for any further errors. Still getting same error?

YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

E57	**E57: High Current on Inverter**	**E57**
	Motor Protector Open, Washer Load too heavy, Wiring problem, Motor defective, or Motor Control Board defective.	
E58	**E58: High Current on Motor Phase**	**E58**
	Motor Protector Open, Laundry Load too heavy, Wiring problem, Motor defective, Motor Control Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Check if the power supply is as per product specifications?
- NO → Provide required power supply, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Check if there is overload of laundry in Washer?
- YES → Make the laundry as per product specifications, and repeat the diagnostic cycle to check for any further errors.
- NO ↓

Remove the laundry, and check whether the drum turns freely without posing any resistance. Is the drum having difficulty in rotating? (See Fig. 1)
- YES → Check whether the friction is caused by the motor (See Fig. 2). Check whether the friction is caused by the tub bearing (See Fig. 3). Replace the defective component. After clearing any obstacles, wait till the motor becomes cool as the thermal protector may take 30 mins to reset (thermal protector may be tripped because of motor overheating). Repeat the diagnostic cycle to check for any further errors.
- NO ↓

Is the resistance measurement of the Motor approximately 3 Ω to 6 Ω? (Measure it directly on the Motor terminals 1 and 2, 2 and 3, and 3 and 1 without wiring.) (See Fig. 4)
- NO → Replace the Motor, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the resistance measurement of Motor device approximately 3 Ω to 6 Ω? (Measure it directly on the of Motor wiring connector on the Motor Control Board side between J2-1 and J2-2, and J2-3 and J2-4.) (See Fig. 5)
- NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Replace the Motor Control Board and repeat the diagnostic cycle to check for any further errors.

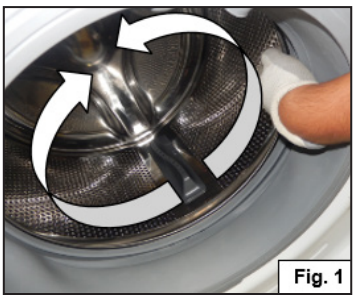


Fig. 1

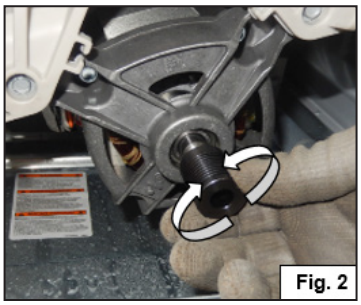


Fig. 2

Troubleshooting Based on Error Codes

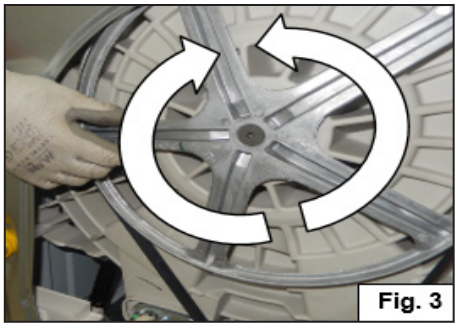


Fig. 3

Fig. 4

Fig. 5

E59	**E59: No Spin Signal for 3 Seconds**	**E59**
	Wiring problem, Motor defective, Motor Control Board defective.	
E55	**E55: Under Speed**	**E55**
	Wiring problem, Motor defective, Motor Control Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Check if the power supply is as per product specifications?

NO → Provide required power supply, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Remove the laundry, and check whether the drum turns freely without posing any resistance. Is the drum having difficulty in rotating? (See Fig. 1)

YES → Check whether the friction is caused by the motor (See Fig. 2). Check whether the friction is caused by the tub bearing (See Fig. 3). Replace the defective component. After clearing any obstacles, wait till the motor becomes cool as the thermal protector may take 30 mins to reset (thermal protector may be tripped because of motor overheating). Repeat the diagnostic cycle to check for any further errors.

NO ↓

Is the resistance measurement of Motor device approximately 3 Ω to 6 Ω? (Measure it directly on the of Motor wiring connector on the Motor Control Board side between J2-1 and J2-2, and J2-3 and J2-4.) (See Fig. 4)

NO → Is the resistance measurement of the Motor approximately 3 Ω to 6 Ω? (Measure it directly on the Motor terminals 1 and 2, 2 and 3, and 3 and 1 without wiring). (See Fig. 5)

NO → Replace the Motor, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Motor Control Board, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check / Replace the wiring, and repeat the diagnostic cycle to check for any further errors.

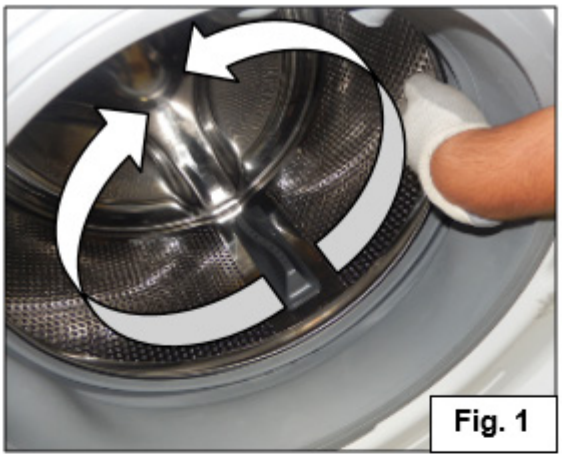


Fig. 1

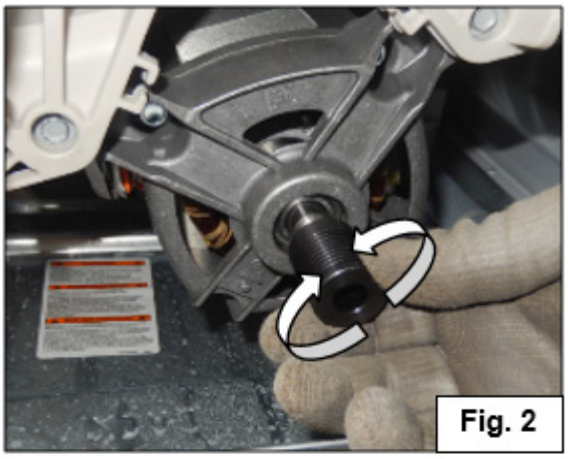


Fig. 2

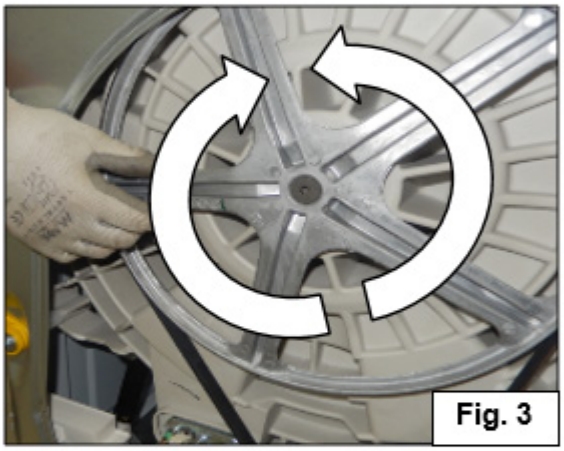


Fig. 3

Fig. 4

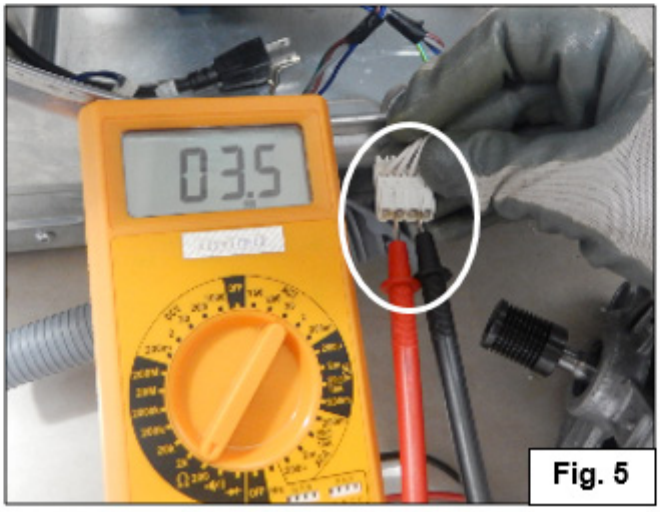


Fig. 5

Troubleshooting Based on Error Codes

E5A	E5A: High Temperature on Control Due to Overload	E5A
	Motor Protector Open, Laundry Load too heavy, Wiring problem, Motor defective, Motor Control Board defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Check if the power supply is as per product specifications?
- NO → Provide required power supply, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Check if there is overload of laundry in Washer?
- YES → Make the laundry as per product specifications, and repeat the diagnostic cycle to check for any further errors.
- NO ↓

Remove the laundry, and check whether the drum turns freely without posing any resistance. Is the drum having difficulty in rotating? (See Fig. 1)
- YES → Check whether the friction is caused by the motor (See Fig. 2). Check whether the friction is caused by the tub bearing (See Fig. 3). Replace the defective component. After clearing any obstacles, wait till the motor becomes cool as the thermal protector may take 30 mins to reset (thermal protector may be tripped because of motor overheating). Repeat the diagnostic cycle to check for any further errors.
- NO ↓

Is the resistance measurement of the Motor approximately 3 Ω to 6 Ω? (Measure it directly on the Motor terminals 1 and 2, 2 and 3, and 3 and 1 without wiring.) (See Fig. 4)
- NO → Replace the Motor and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Is the resistance measurement of Motor device approximately 3 Ω to 6 Ω? (Measure it directly on the of Motor wiring connector on the Motor Control Board side between J2-1 and J2-2, and J2-3 and J2-4.) (See Fig. 5)
- NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Replace the Motor Control Board and repeat the diagnostic cycle to check for any further errors.

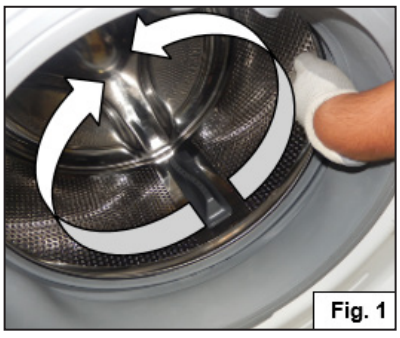


Fig. 1

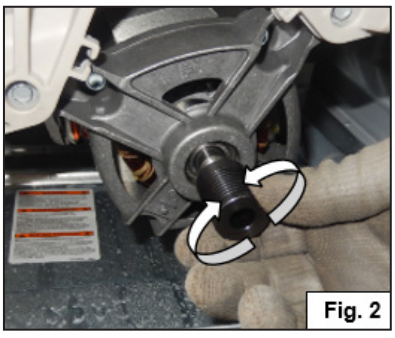


Fig. 2

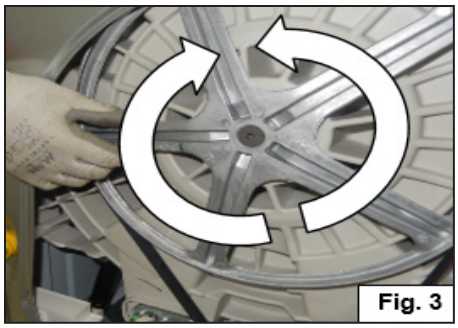


Fig. 3

Fig. 4

Fig. 5

E5B	**E5B: Motor Control Under Voltage**	**E5B**
	Motor Control Board defective, Voltage out of range.	
E5C	**E5C: High Voltage experienced by Motor Control**	**E5C**
	Motor Control Board defective, Voltage out of range.	

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Measure the main voltage and make sure it is within the nominal range. Is the main voltage correct?

NO → Wait for the main voltage to return to normal conditions, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Motor Control Board and check if the Appliance still displaying E5C / E5B?

YES ↓

Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

Troubleshooting Based on Error Codes

E5D	**E5D: Communication Problem with Motor Control**	**E5D**
	Main Circuit Board defective, Motor Control Board defective, Wiring problem.	
E5E	**E5E: Communication Problem from Motor Control**	**E5E**
	Main Circuit Board defective, Motor Control Board defective, Wiring problem.	
E5F	**E5F: Motor Control is Continuously Resetting**	**E5F**
	Main Circuit Board defective, Motor Control Board defective, Wiring problem.	

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Are connectors of Main Control Board and Motor Control Board properly inserted?

NO → Repair the connectors, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Measure the continuity between J14 connectors (Main Circuit Board) and J1 connectors (Motor Control Board). Is the wiring OK?

NO → Replace the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Motor Control Board, and repeat the diagnostic cycle to check for any further errors. Is the Appliance working?

NO → Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

E62	**E62: Wash Temperature Too High**	E62
	NTC defective, Wiring problem.	

Checks to perform:

(Not applicable for 417 series)

WARNING

Check that all the connectors are correctly inserted.

Is the resistance measurement of the Drum water NTC ranges from 4.5 KΩ to 5.5 KΩ at 25 °C? (Measure it directly on the Drum water NTC without wiring.) (See Fig. 1)

NO → Replace the NTC, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Reconnect the connector and measure the resistance ranges from 4.5 KΩ to 5.5 KΩ at 25 °C. On the Drum water NTC wiring connector on the Main Control Board between J12-4 and J12-5, Is the Inlet NTC Valve wiring OK? (See Fig. 2)

NO → Replace the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check if the resistance between the terminals of Heating Element is approximately 14 Ω ± 5%? (See Fig. 3)

NO → Replace the Heating Element and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check the resistance between ground and both heater terminals when the heater terminals are disconnected. Is Resistance value not "0"? (See Fig. 4)

NO → Replace the Heating Element and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

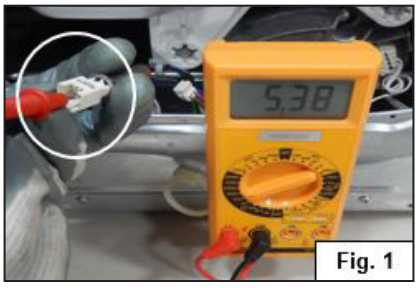


Fig. 1

Fig. 2

Fig. 3

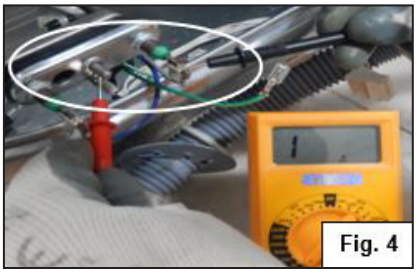


Fig. 4

Troubleshooting Based on Error Codes

E66	**E66: Heater Relay Problem**	**E66**
	Heating Element defective, Wiring problem.	
E68	**E68: Current Leakage to Ground on Heater or Wiring**	**E68**
	Current Leakage to Ground on Heater or Wiring.	
E69	**E69: Heater Open**	**E69**
	Heating Element defective, Wiring problem.	
E6A	**E6A: Heater Relay Sensing Problem**	**E6A**
	Heating Element defective, Wiring problem.	

Checks to perform:

(Not applicable for 417 series)

⚠ WARNING

Check that all the connectors are correctly inserted.

Check if the resistance between the terminals of Heating Element is approximately 14 Ω ± 5%? (See Fig. 1)

NO → Replace the Heating Element, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check if the resistance of Heating Element near Main Control Board side (between J5-1 and J5-2) is approximately 14 Ω ± 5%? (See Fig. 2)

NO → Replace the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check the resistance between ground and both heater terminals when the heater terminals are disconnected. Is resistance value not "0"? (See Fig. 3)

NO → Replace the Heating Element, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

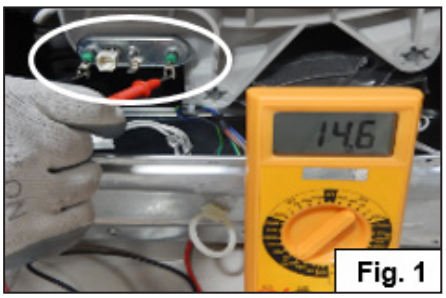


Fig. 1

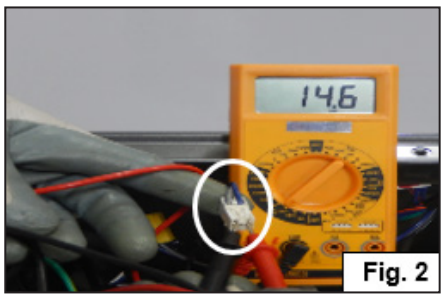


Fig. 2

Fig. 3

E71	**E71: Drum Water NTC Failure (Tub Heater)**	**E71**
	Drum water NTC defective.	
E74	**E74: Wash Temperature Does Not Increase**	**E74**
	Drum water NTC defective.	

Checks to perform:

(Not applicable for 417 series)

⚠ WARNING

Check that all the connectors are correctly inserted.

Is the resistance measurement of the Drum water NTC ranges from 4.5 KΩ to 5.5 KΩ at 25 °C? (Measure it directly on the Drum water NTC without wiring.) (See Fig. 1)

NO → Replace the Drum water NTC, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Reconnect the connector and measure the resistance ranges from 4.5 KΩ to 5.5 KΩ at 25 °C. On the Drum water NTC wiring connector on the Main Control Board between J12-4 and J12-5, Is the Inlet NTC Valve wiring OK? (See Fig. 2)

NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check if the resistance between the terminals of Heating Element is approximately 14 Ω ± 5% ?(See Fig. 3)

NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check the resistance between ground and both heater terminals when the heater terminals are disconnected. Is Resistance value not "0"? (See Fig. 4)

NO → Replace the Heating Element and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

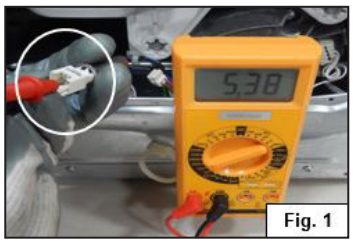


Fig. 1

Fig. 2

Fig. 3

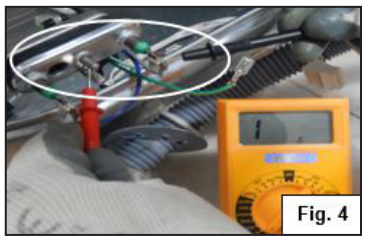


Fig. 4

Troubleshooting Based on Error Codes

E84	**E84: Recirculation Pump TRIAC Series** Recirculation Pump defective or Main Circuit Board Defective.	**E84**
E85	**E85: Recirculation Pump TRIAC** Recirculation Pump defective, and Main Circuit Board Defective.	**E85**

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Is the input power supply 120 V at the Recirculation Pump?

NO → Check the wiring connections and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check the wiring between connectors J-4 of the Main Board and Recirculation Pump for continuity. Is the continuity there?

NO → Replace / Repair the wiring and repeat the diagnostic cycle to check for any further errors.

YES ↓

Is the resistance measurement of the Recirculating Pump approximately 31.5 ± 10% Ω? (Measure it directly on the connector between J4-1and J4-2 of the Main Board) (See Fig.1)

NO → Replace / Repair the wiring and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check / Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

NO → Is the resistance measurement of the Recirculating Pump approximately 31.5 ± 10% Ω? (Measure it directly on the Recirculating Pump) (See Fig.2)

NO → Replace the Recirculating Pump and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check / Replace the wiring and repeat the diagnostic cycle to check for any further errors.

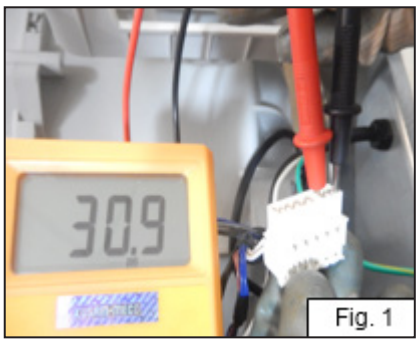


Fig. 1

Measure between connections of J4-1 and J4-2 of Main Control Board

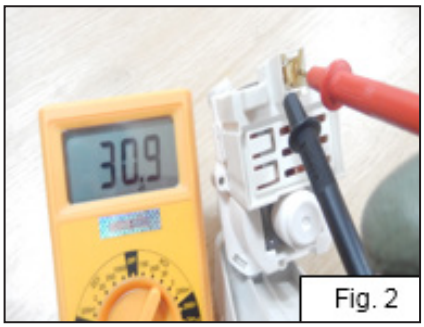


Fig. 2

E83	**E83: Wrong Selector Reading** Wrong configuration data loaded or Electronic Control Board defective.	**E83**
E86	**E86: Incorrect User Interface Selection Table** Wrong configuration data loaded or Electronic Control Board defective.	**E86**
E87	**E87: User Interface Micro-Controller Fault** Wrong configuration data loaded or Electronic Control Board defective.	**E87**

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

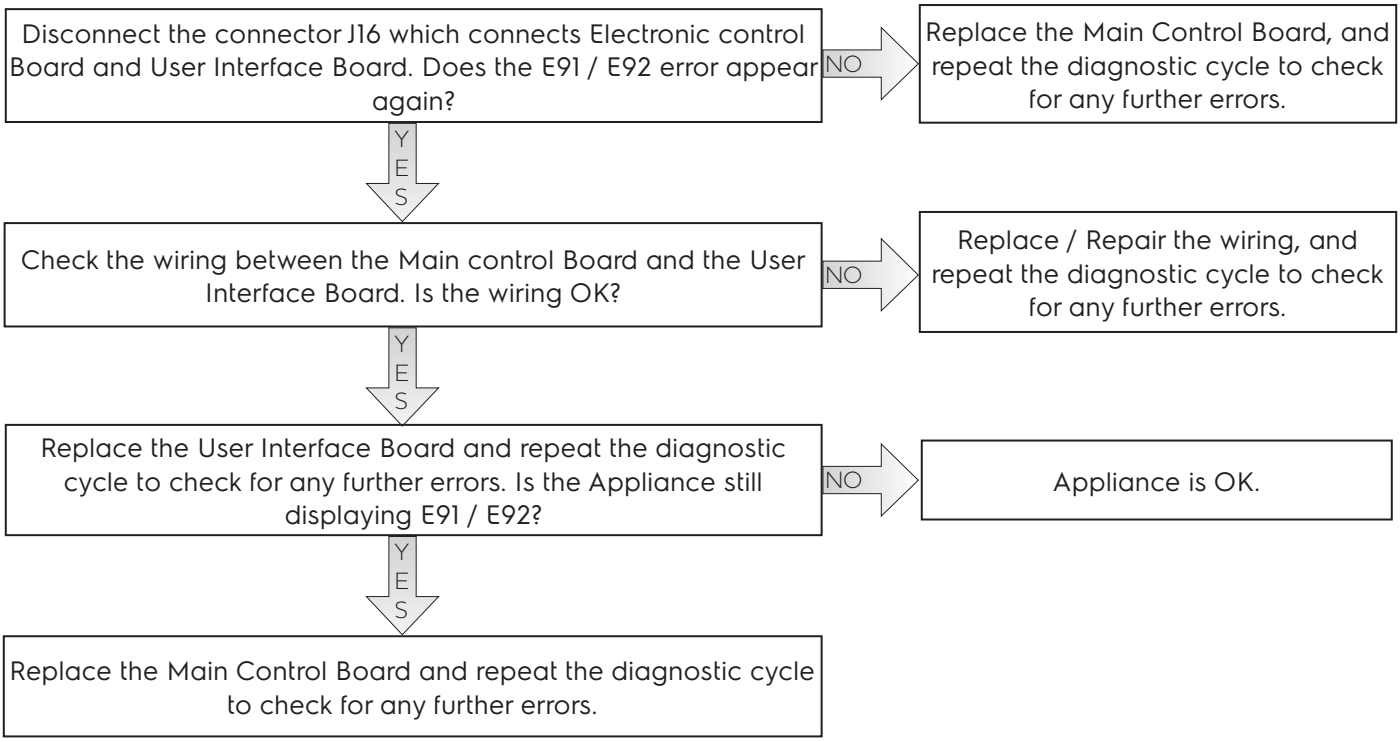
Check if correct Cycle Selector Board, User Interface Board, Motor Control Board and Electronic control Board are installed and also wiring between them. If not then replace the respective board or wiring and repeat the diagnostic cycle to check for any further errors. Incorrect configuration possible.

E91	**E91: Communication Error User Interface to Control Board** User Interface Board defective, Main Control Board defective, Wiring defective.	**E91**
E92	**E92: User Interface_Main Board Communications Error** User Interface Board defective, Main Control Board defective, Wiring defective.	**E92**

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.


Disconnect the connector J16 which connects Electronic control Board and User Interface Board. Does the E91 / E92 error appear again?
NO
Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.
YES
Check the wiring between the Main control Board and the User Interface Board. Is the wiring OK?
NO
Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.
YES
Replace the User Interface Board and repeat the diagnostic cycle to check for any further errors. Is the Appliance still displaying E91 / E92?
NO
Appliance is OK.
YES
Replace the Main Control Board and repeat the diagnostic cycle to check for any further errors.

Troubleshooting Based on Error Codes

E93	**E93: Console or Main Board Control Problem**	**E93**
	Software problem between Main Board and Control Board.	
E94	**E94: Main Board Control Problem**	**E94**
	Software problem between Main Board and Control Board.	
E97	**E97: Console or Main Board Control Problem**	**E97**
	Software problem between Main Board and Control Board.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

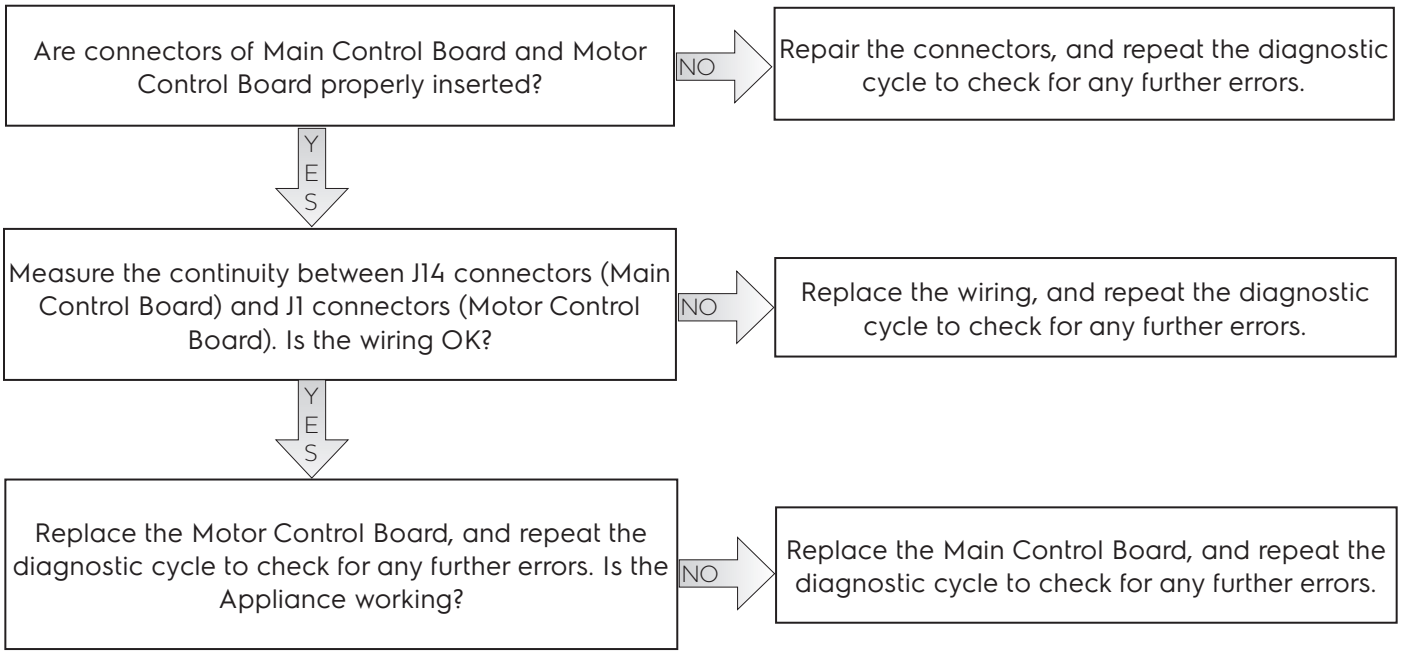
Check if correct User Interface Board, Motor Control Board and Electronic Control Board are installed, and check the wiring between them. If not then replace the respective board or wiring and repeat the diagnostic cycle to check for any further errors.

E98	**E98: Console Control Problem**	**E98**
	Main Circuit Board defective, Motor Control Board defective, Wiring problem.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.


Are connectors of Main Control Board and Motor Control Board properly inserted?
NO
Repair the connectors, and repeat the diagnostic cycle to check for any further errors.
YES
Measure the continuity between J14 connectors (Main Control Board) and J1 connectors (Motor Control Board). Is the wiring OK?
NO
Replace the wiring, and repeat the diagnostic cycle to check for any further errors.
YES
Replace the Motor Control Board, and repeat the diagnostic cycle to check for any further errors. Is the Appliance working?
NO
Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

E9C	**E9C: User Interface Configuration Problem**	E9C
	Main Circuit Board defective, Motor Control Board defective, Wiring problem.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Disconnect the connector J16 which connects Electronic control Board and J5 of User Interface Board. Does the E9C error appear again?

NO → Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check the wiring between the Main Control Board and the User Interface Board.

- Detach and reconnect the connectors on both boards several times.
- Measure the continuity between connector J16 (Main Control Board) and J5 (User Interface Board).

Is the wiring OK?

NO → Replace / Repair the wiring, and repeat the diagnostic cycle to check for any further errors.

YES ↓

Replace the User Interface Board, and repeat the diagnostic cycle to check for any further errors. Is the Appliance still displaying E9C?

NO → Appliance is OK.

YES ↓

Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

E9E	**E9E: Key Stuck or Contaminated**	E9E
	User Interface Board defective , Control Panel defective.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.

Clean buttons and spring alignment in User Interface assembly. Is the Appliance still displaying E9E? If yes, then replace User Interface Board and repeat the diagnostic cycle to check for any further errors.

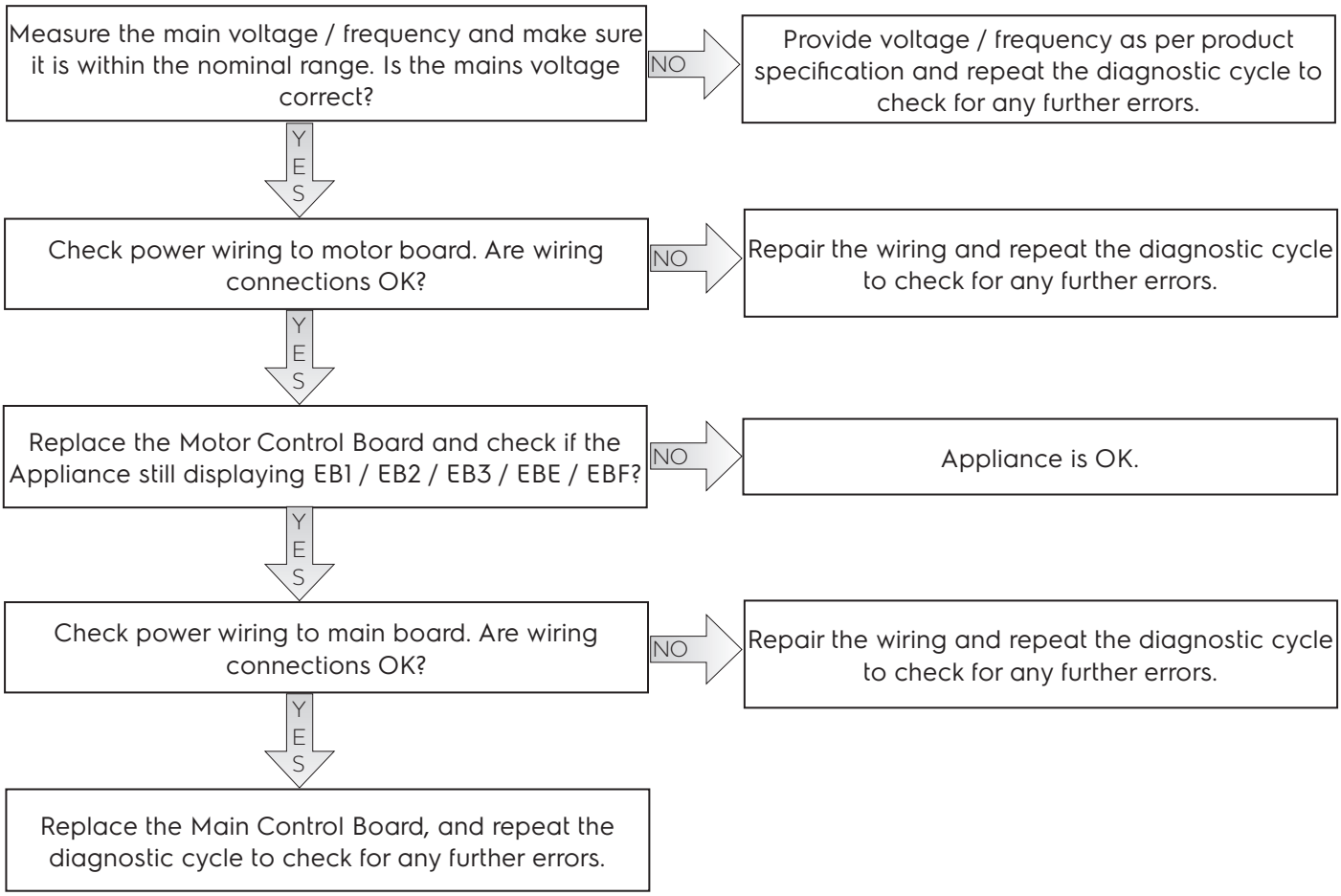
Troubleshooting Based on Error Codes

EH1	**EH1: Frequency of Power Out of Limits**	**EH1**
	Main Circuit Board defective, Fluctuation in input.	
EH2	**EH2: Supply Voltage Too High**	**EH2**
	Main Circuit Board defective, Fluctuation in input.	
EH3	**EH3: Supply Voltage Too Low**	**EH3**
	Main Circuit Board defective, Fluctuation in input.	
EHE	**EHE: Control Relay Fault**	**EHE**
	Main Circuit Board defective, Fluctuation in input.	
EHF	**EHF: Control Relay Sense Fault**	**EHF**
	Main Circuit Board defective, Fluctuation in input.	

Checks to perform:

⚠ WARNING

Check that all the connectors are correctly inserted.


Measure the main voltage / frequency and make sure it is within the nominal range. Is the mains voltage correct?
NO
Provide voltage / frequency as per product specification and repeat the diagnostic cycle to check for any further errors.
YES
Check power wiring to motor board. Are wiring connections OK?
NO
Repair the wiring and repeat the diagnostic cycle to check for any further errors.
YES
Replace the Motor Control Board and check if the Appliance still displaying EB1 / EB2 / EB3 / EBE / EBF?
NO
Appliance is OK.
YES
Check power wiring to main board. Are wiring connections OK?
NO
Repair the wiring and repeat the diagnostic cycle to check for any further errors.
YES
Replace the Main Control Board, and repeat the diagnostic cycle to check for any further errors.

EF2	EF2: Too Much Soap or Wrong Type	EF2

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

This is an excessive detergent dosage warning. The system detected too much foam was forming during the drain phases. Advise the Customer to use the correct quantity of detergent and to make sure the filter and drain circuit are clean.

EF5	EF5: Load Unbalanced	EF5

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Check if the power supply is as per the product specifications?
- NO → Provide required power supply, and repeat the diagnostic cycle to check for any further errors.
- YES ↓

Check if there is overload of laundry in Washer?
- YES → Make the laundry as per the product specifications and repeat the diagnostic cycle to check for any further errors.
- NO ↓

Remove the laundry, and check whether the drum turns freely without posing any resistance. Is the drum having difficulty in rotating? (See Fig. 1)
- YES → Check whether the friction is caused by the motor (See Fig. 2). Check whether the friction is caused by the tub bearing (See Fig. 3). Replace the defective component. After clearing any obstacles, wait till the motor becomes cool as the thermal protector may take 30 mins to reset (thermal protector may be tripped because of motor overheating). Repeat the diagnostic cycle to check for any further errors.
- NO ↓

Replace the Motor Control Board, and repeat the diagnostic cycle to check for any further errors.

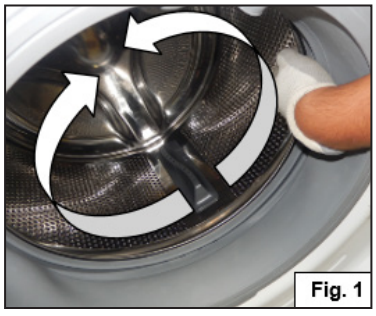


Fig. 1

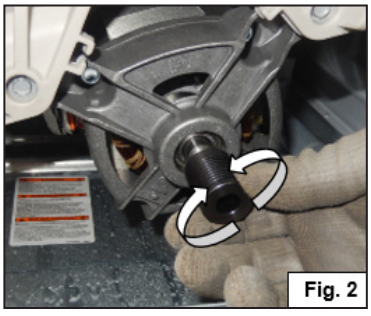


Fig. 2

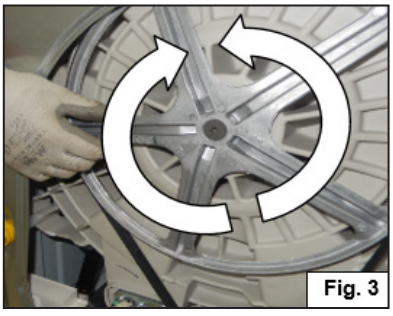


Fig. 3

Troubleshooting Based on Error Codes

EF6	EF6: Control Reset	EF6

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Check wiring to main board. Unplug the unit for 1 minute and retry. If problem is not corrected replace Main Control Board.

EF9	**EF9: Hot Valve Warning**	EF9
	Hot and Cold Hose reversed.	

Checks to perform:

WARNING

Check that all the connectors are correctly inserted.

Check for the water supply line. Is the continuity flow of water is there?

NO → Check for the water supply line, power connection and repeat the diagnostic cycle to check for any further errors.

YES ↓

Check if the Hot and Cold water hoses are connecting to their respective Hot and Cold Valve?

NO → Switch back the Cold and Hot water hoses to their correct position and repeat the diagnostic cycle to check for any further errors.

YES ↓

Is the temperature of Hot water same as the Cold water?

NO → Check for Main Control Board and repeat the diagnostic cycle to check for any further errors.

YES ↓

Fix the Hot water in the house supply.